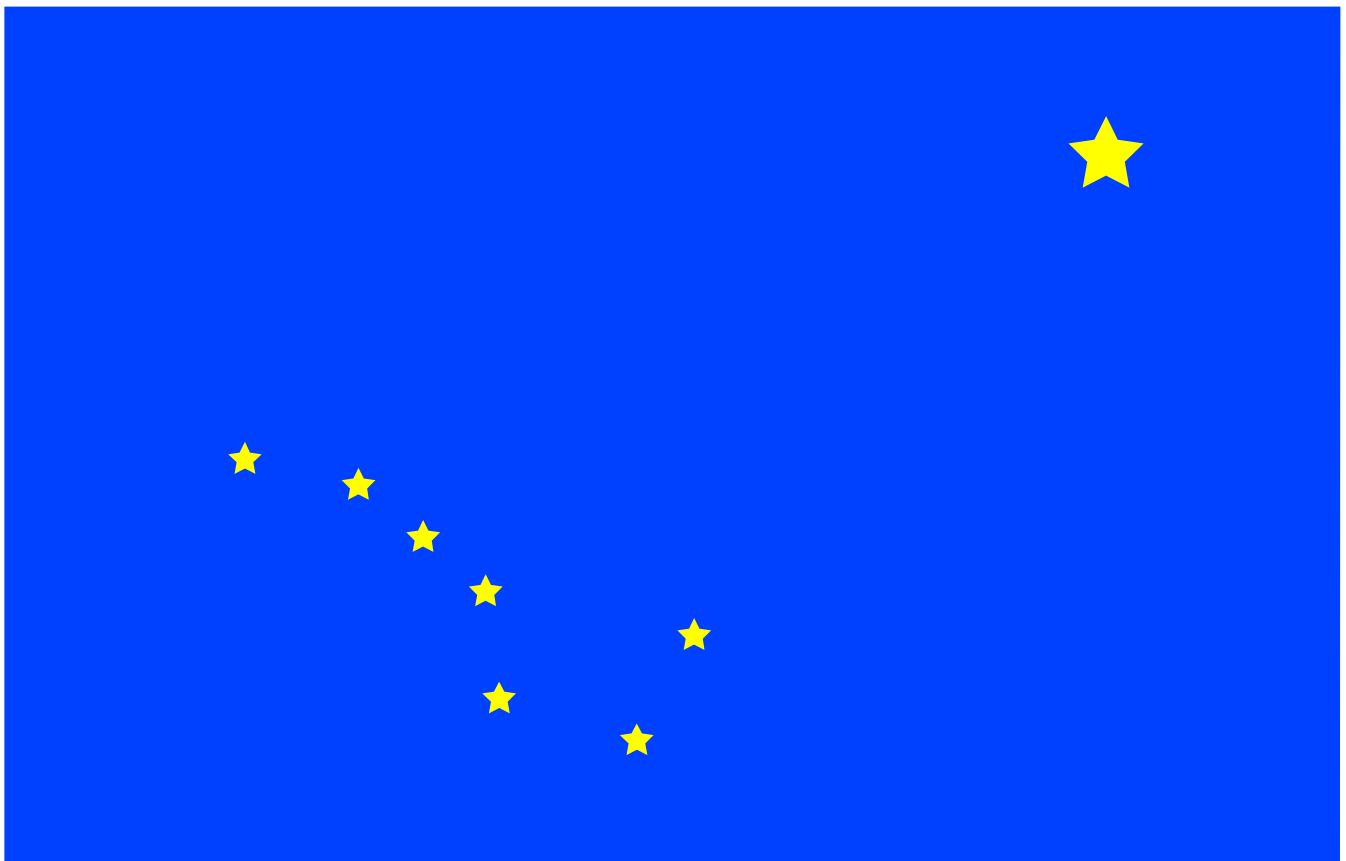


# Fort Wainwright Installation Action Plan FY 2005



printed September 2004

**Fiscal Year 2005**

**Fort Wainwright  
Installation Action Plan**



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# Statement of Purpose

The purpose of the Installation Action Plan is to outline the total multi-year restoration program for an installation. The plan will define Installation Restoration Program requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each Installation Restoration Program site at the installation.

In an effort to coordinate planning information between the Installation Restoration Program manager, major Army commands, installations, executing agencies, regulatory agencies, and the public, an Installation Action Plan has been completed for Fort Wainwright. The Installation Action Plan is used to track requirements, schedules, and budgets for all major Army installation restoration programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change. Fort Wainwright is expected to be RIP in FY05.

## **Contributors to this IAP:**

ADEC

Engineering & Environment, Inc.

U.S. Army Environmental Center

U.S. Army Garrison, Alaska

U.S. Environment Protection Agency

# Acronyms & Abbreviations

<b>AI</b>	Active/Inactive
<b>ADEC</b>	Alaska Department of Environmental Conservation
<b>AEDB-R</b>	Army Environmental Database - Restoration
<b>AS</b>	Air Sparging
<b>AST</b>	Aboveground Storage Tank
<b>BTEX</b>	Benzene, Toluene, Ethylbenzene and Xylene
<b>BTU</b>	British Thermal Unit
<b>CAP</b>	Corrective Action Plan
<b>CC</b>	Compliance Cleanup
<b>CERCLA</b>	Comprehensive Environmental Response Compensation and Liability Act (1980)
<b>CLOSES</b>	Cleanup Operations and Site Exit Strategy
<b>COC</b>	Contaminants of Concern
<b>CRAAP</b>	Chena River Aquatic Assessment Program
<b>CTC</b>	Cost-to-Complete
<b>cy</b>	cubic yards
<b>DCA</b>	dichloroethane
<b>DEW</b>	Distant Early Warning
<b>DoD</b>	Department of Defense
<b>DRMO</b>	Defense Reutilization Marketing Organization
<b>DRO</b>	Diesel Range Organics
<b>EDB</b>	ethylene dibromide
<b>EPA</b>	(United States) Environmental Protection Agency
<b>EQFS</b>	East Quartermaster Fueling System
<b>ER,A</b>	Environmental Restoration, Army (formally called DERA)
<b>ESD</b>	Explanation of Significant Difference
<b>FARP</b>	Forward Air Refueling Point
<b>FFA</b>	Federal Facility Agreement
<b>FS</b>	Feasibility Study
<b>ft</b>	foot
<b>FTWW</b>	Fort Wainwright
<b>FUDS</b>	Formerly Used Defense Sites
<b>FY</b>	Fiscal Year
<b>GRO</b>	Gasoline Range Organics
<b>HRS</b>	Hazard Ranking System
<b>IAP</b>	Installation Action Plan
<b>IDW</b>	Industrial Discharge Waste
<b>IRA</b>	Interim Remedial Action
<b>IRP</b>	Installation Restoration Program
<b>ITR</b>	Independant Technical Review
<b>K</b>	\$1,000
<b>LAAF</b>	Ladd Army Air Field
<b>LAFB</b>	Ladd Air Force Base
<b>LTM</b>	Long-Term Monitoring
<b>MMRP</b>	Military Munitions Response Program
<b>NE</b>	Not Evaluated
<b>NFA</b>	No Further Action
<b>NFRAP</b>	No Further Remedial Action Plan
<b>NPL</b>	National Priorities List
<b>OU</b>	Operable Unit
<b>PA</b>	Preliminary Assessment

# Acronyms & Abbreviations

<b>PAH</b>	polyaromatic hydrocarbon
<b>PCE</b>	polychlorinated byphenyl
<b>POL</b>	Petroleum, Oil & Lubricants
<b>POM</b>	Program Objective Memorandum (budget)
<b>ppb</b>	parts per billion
<b>ppm</b>	parts per million
<b>QFS</b>	Quartermaster Fueling System
<b>RA</b>	Remedial Action
<b>RA(O)</b>	Remedial Action - Operation
<b>RAB</b>	Restoration Advisory Board
<b>RC</b>	Response Complete
<b>RD</b>	Remedial Design
<b>REM</b>	Removal
<b>RI</b>	Remedial Investigation
<b>RIP</b>	Remedy in Place
<b>ROD</b>	Record of Decision
<b>ROLF</b>	Railcar Off-Loading Facility
<b>ROST</b>	Rapid Optical Screening Tool
<b>RRSE</b>	Relative Risk Site Evaluation
<b>SBCT</b>	Stryker Brigade Combact Team
<b>SI</b>	Site Inspection
<b>SVE</b>	Soil Vapor Extraction
<b>SVOC</b>	Semi-Volatile Organic Compound
<b>TA</b>	Training Area
<b>TCE</b>	trichloroethylene
<b>USACE</b>	United States Army Corps of Engineers
<b>USAEC</b>	United States Army Environmental Center (formerly called USATHMA)
<b>USAF</b>	United States Air Force
<b>USARAK</b>	United States Army, Alaska
<b>USARPAC</b>	United States Army, Pacific Command
<b>UST</b>	Underground Storage Tank
<b>UXO</b>	Unexploded Ordnance
<b>VOC</b>	Volatile Organic Compound
<b>WQFS</b>	West Quartermaster Fueling System

<b>STATUS:</b>	Listed on the NPL, 1990. HRS score 42																
<b># OF AEDB-R SITES:</b>	78																
<b>ACTIVE AEDB-R SITES:</b>	1																
<b>RIP with LTM or RA(O)</b>	17																
<b>RESPONSE COMPLETE:</b>	60																
<b>MMRP SITES:</b>	9																
<b>DIFFERENT SITE TYPES:</b>	<table><tr><td>1 Fire/Crash Training Area</td><td>12 Contaminated Buildings</td></tr><tr><td>1 Contaminated Fill</td><td>1 Contaminated Sediment</td></tr><tr><td>5 Surface Disposal Areas</td><td>4 Landfills</td></tr><tr><td>1 Oil Water Separator</td><td>3 POL Lines</td></tr><tr><td>5 Storage Areas</td><td>12 Spill Site Areas</td></tr><tr><td>2 Above Ground Storage Tank</td><td>26 Underground Storage Tanks</td></tr><tr><td>2 Explosive Ordnance Disposal</td><td>3 Unexploded Munitions/Ordnance</td></tr></table>			1 Fire/Crash Training Area	12 Contaminated Buildings	1 Contaminated Fill	1 Contaminated Sediment	5 Surface Disposal Areas	4 Landfills	1 Oil Water Separator	3 POL Lines	5 Storage Areas	12 Spill Site Areas	2 Above Ground Storage Tank	26 Underground Storage Tanks	2 Explosive Ordnance Disposal	3 Unexploded Munitions/Ordnance
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2 Above Ground Storage Tank	26 Underground Storage Tanks																
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<b>CONTAMINANTS OF CONCERN:</b>	Trichloroethelene, Pesticides, Petroleum/Oil/Lubricants (POL), EDB, DCA, Lead, PCE																
<b>MEDIA OF CONCERN:</b>	Soil, Groundwater, sediments																
<b>COMPLETED REM/IRA/RA:</b>	<ul style="list-style-type: none"><li>-Removal of USTs and contaminated soils</li><li>-Removal of contaminated soil at Fire Training Area; now used as training area</li><li>-Innovative remedial action in the QFS (AS curtain, augmentation)</li><li>-Chemical agent dump site intrusive investigation</li><li>-Air sparging/soil vapor extraction systems in place at numerous sites</li><li>-Drum removal at four sites</li><li>-Removal and remediation of pesticide building/soils</li><li>-Capping of inactive landfill</li><li>-Removal of a retaining structure and removal of contaminated soils</li><li>-Product recovery system built using a to-be-demolished building shell</li></ul>																
<b>CURRENT IRP PHASES:</b>	RA at 1 site	RA(O) at 8 sites	LTM at 9 sites														
<b>PROJECTED IRP PHASES:</b>	RA(O) at 9 sites	LTM at 14 sites															
<b>IDENTIFIED POSSIBLE REM/IRA/RA:</b>	RA at FTWW-101																
<b>DURATION:</b>	<table><tr><td>Year of IRP Inception:</td><td>1988</td></tr><tr><td>Year of IRP RA Completion:</td><td>2005</td></tr><tr><td>Year of IRP Completion including LTM/RA(O):</td><td>2034+</td></tr></table>			Year of IRP Inception:	1988	Year of IRP RA Completion:	2005	Year of IRP Completion including LTM/RA(O):	2034+								
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Year of IRP Completion including LTM/RA(O):	2034+																



# Installation Information

<b>SITE DESCRIPTION:</b>	Fort Wainwright is situated in Central Alaska within the Fairbanks North Star Borough, and is located on the eastern boundary of the city of Fairbanks, the state's second largest city. Fort Wainwright consists of 915,000 acres, including the main post cantonment area that is approximately 4,500 acres, 8,825 acres of ranges and 898,306 acres for military maneuvers.
<b>IRP EXECUTING AGENCIES:</b>	<b>IRP Executor:</b> U.S. Army Alaska, Public Works Environmental Department and U.S. Army Corps of Engineers, Alaska District; General Services Administration through U.S. Army Alaska Directorate of Contracting.
<b>REGULATORY PARTICIPATION:</b>	<b>Federal:</b> U.S. Environmental Protection Agency, Region X. <b>State:</b> Alaska Department of Environmental Conservation, Northern Region
<b>REGULATORY STATUS:</b>	National Priority List (NPL) with Federal Facility Agreement (FFA) Two party agreement that covers UST and POL sites
<b>MAJOR CHANGES TO IAP FROM PREVIOUS YEAR:</b>	<ul style="list-style-type: none"><li>- MMRP sites added to IAP</li><li>- FTWW-096- lead-contaminated soil removed</li></ul>

# Installation Description

**MISSION:** The primary mission of Fort Wainwright is to train infantry soldiers in the Arctic environment, to prepare troops to defend Alaska in the event of war, and to rapidly deploy worldwide. Fort Wainwright is part of U.S. Army, Alaska. Industrial operations of Fort Wainwright include the maintenance of fixed-wing aircraft, helicopters, and support vehicles. In addition, the Defense Reutilization Marketing Office (DRMO) operates an area office on Fort Wainwright for salvaging military surplus items and disposing of other Post-generated waste products.

**HISTORY:** The United States Army Fort Wainwright has been used by the Department of Defense (DOD) for military operations continuously since 1938. Originally known as LADD Army Airfield (LAAF), the post was established for cold weather experimentation. During World War II, LAAF served as a transfer point in the lend-lease program. Between 1942 and 1945, almost 8,000 combat and transport aircraft were transferred to Soviet aircrews at LAAF. In 1947, the newly formed United States Air Force (USAF) assumed control of LAAF, which was redesignated as LADD Air Force Base (LAFB). LAFB served as a resupply and maintenance base for the Remote Distant Early Warning (DEW) sites and experimental ice stations in the Arctic Ocean. During the Korean conflict, LAFB served as part of the defense network, and was the site of the first Nike Hercules Missile launch from a tactical missile site in December 1959.

On January 1, 1961, the United States Army (USA) resumed control over LAFB. The USA renamed the installation Fort Wainwright, after General Jonathan M. Wainwright, the commander of the forces defending the Bataan Peninsula in the Philippines at the beginning of World War II.

**REGULATORY STATUS:** Fort Wainwright was proposed for inclusion on the CERCLA National Priorities List (NPL) in July 1989, due to releases of hazardous substances, pollutants, and contaminants into the environment. It was listed final in August 1990. A Federal Facilities Agreement (FFA) was signed by the U.S. Environmental Protection Agency (EPA, Region 10), the Alaska Department of Environmental Conservation (ADEC), and the United States Department of the Army in March 1992. This agreement sets deadlines, objectives, responsibilities, and procedural framework for implementing the Installation Restoration Program (IRP) at Fort Wainwright.

# Contamination Assessment

Ft Wainwright has 1 active site (in RI), and 17 sites that are being monitored (RA(O) or LTM). All known sites have been evaluated and fifty-nine sites have been closed or considered no further remedial action planned (NFRAP). The remaining active sites have been investigated under various Operable Units (OUs) or a signed Two-Party Agreement that covers POL sources.

The Fort Wainwright Installation Restoration Program conducted initial investigations in 1989. Upon Fort Wainwright's inclusion on the National Priorities List in 1990, representatives from the EPA and state began partnering with the Army to research past activities at the installation. Together, the three agencies wrote the Federal Facilities Agreement for Fort Wainwright, which was signed in 1992.

The majority of waste generation activities on Fort Wainwright consist of utility generation; landfill operations; facility repair and maintenance operations; and equipment, vehicle, and aircraft maintenance and repair activities. In general, most of the hazardous wastes generated on Fort Wainwright include non-recyclable batteries, spent solvents and ignitable wastes, contaminated fuels, painting wastes, and pesticides. LAFB as-built plans prepared in the 1950s (AEC, 1958), show oil separators in the floor drains of many of the maintenance facilities. Used oils, solvents, and fuel spills were reportedly discharged to the floor drains of the maintenance facilities, which either routed the materials directly to the sanitary sewer, or through an oil separator to the sanitary sewer. Spent solvents and contaminated fuels were routinely mixed with waste oils in the past.

Reportedly, waste solvents were also dumped onto the ground. Waste oils, solvents, and contaminated fuels have all been incinerated at the post power plant. Used oils were used for dust control and for fire pit training exercises. Used oil underground storage tanks (USTs) were installed at many of the maintenance facilities, and were removed and replaced beginning in 1990, with double-walled, cathodically protected USTs with leak detection.

Pesticides (insecticides, herbicides, fungicides, avicides and rodenticides) have been used to maintain grounds and structures and to prevent pest-related health problems. Pesticides were reported to have been mixed on inadequate surfaces and/or stored in such a way as to allow releases to the soil.

In FY99, an Independent Technical Review (ITR) was conducted at Fort Wainwright, focusing on the three source areas associated with Operable Unit 3 (FTWW-055, Fairbanks Fuel Terminal; FTWW-083, the Railroad Off-Loading Facility; and FTWW-084, the Fairbanks-Eielson Pipeline Spills). The final report from this ITR indicated that the remedial actions underway were correct, adequate, and the most cost efficient ways to reach clean-up goals. An ESD was signed in Sept 2001 addressing the additional costs and recommended action.

Petroleum persistence remains a topic of negotiation in closing sites in Alaska. The Army continues to work with the state of Alaska to minimize monitoring requirements and close sites with persistent remaining petroleum contamination. The first five year review was completed in September 2002, with minimal recommended actions required.

# Previous Studies

	Title	AUTHOR	DATE
	<b>Operable Unit 1</b>		
1	Installation Assessment of Ft. Richardson and Sub-installations: Ft. Greely and Ft. Wainwright	Env. Science & Eng.	Sep-83
2	Side Scan Sonar Survey and Diver Inspection of Blair Lakes, Blair Lakes, Tanana Flats	Northern Tech. Svcs.	Nov-86
3	Blair Lakes Drum Mapping and Sample Analysis, Blair Lakes, Ft. Wainwright, OU1	URS Corporation	Dec-86
4	FTW River Road Drum Site Survey Findings	Harding Lawson Assoc.	Sep-87
5	Project Report for Soil Sampling and Building Demolition Bldg. #1567	OHM Remed. Svcs.	Aug-91
6	Records Search, Preliminary Source Evaluation	Harding Lawson Assoc.	Feb-92
7	Analysis of Radar Profiles for Chemical Waste Sites	US Army Cold Regions Research Engineering Lab	Oct-92
8	Sampling and Analytical Final Report	OHM Remed. Svcs.	Jan-93
9	Draft Operations Final Report	OHM Remed. Svcs.	Feb-93
10	Draft Final Records Search 2, OU1	Harding Lawson Assoc.	Mar-93
11	Maintenance Facility Audit, Operable Unit 1	Harding Lawson Assoc.	Mar-93
12	Final Report, Work Plan, FTW, FFA, OU1, PSE2	Harding Lawson Assoc.	Jun-93
13	Revised Work Plan, FTW, FFA, OU1, PSE2 Blair Lakes and Drum Sites, Tanana Flats Training Area, OU1	Harding Lawson Assoc.	Sep-93
14	Site Safety and Health Plan, Chemical Agent Dump Site, Operable Unit 1, Preliminary Source Evaluation 2, (Phase 2), West Birch Hill Area, East of the Fairbanks Fuel Terminal	Harding Lawson Assoc.	Sep-93
15	Final Work Plan, FFA, OU1, PSE2, Chemical Agent Dump Site, West Birch Hill, OU1.	Harding Lawson Assoc.	Sep-93
16	Record Search 2, OU1	Harding Lawson Assoc.	Sep-93
17	Phase II Site Investigation, Building 1565	Harding Lawson Assoc.	Jan-94
18	Draft Preliminary Source Evaluation 2, Support Work, 801 Drum Burial Site	Harding Lawson Assoc.	Feb-94
19	Preliminary Source Evaluation 2, Blair Lakes and Drum Sites, Blair Lakes, Tanana Flats Training Area, Cantonment Area	Harding Lawson Assoc.	Mar-94
20	Operable Unit 1, Preliminary Source Evaluation 2, 2 Vols.	Harding Lawson Assoc.	Apr-94
21	Final Preliminary Source Evaluation 2, Chemical Agent Dump Site, West Birch Hill, East of Fairbanks Fuel Terminal, OU1.	Harding Lawson Assoc.	Apr-94
22	Phase II Site Investigation, Building 1565, Trip Report March/April Sampling Event	Harding Lawson Assoc.	May-94
23	Record of Decision for Interim Remedial Action, Chemical Agent Dump Site, Operable Unit 1	U.S. Army Alaska	Aug-95
24	Draft Remedial Action Report, Chemical Agent Dump Site	OHM Remed. Svcs.	Dec-95
25	Draft Remedial Action Report, Book 1 and Book 2, Government Agency Reports, Chemical Agent Dump Site	OHM Remed. Svcs.	Dec-95
26	After Action Review, Chemical Agent Dump Site	U.S. Army Technical Escort Unit	Dec-95
27	Draft Ecological Risk Assessment, Operable Unit 1	ENSR Consulting and Engineering	Feb-96
28	Release Investigation Report, Building 3015	AGRA Earth & Environmental	Mar-96
29	Amendment and Final Design Install/Replace Oil-Water Separators, and Drawings	Corps of Engineers	Aug-96
30	Quality Assurance Summary Report on 1996 Groundwater Sampling at Buldings 1599 and 2077	Fort Wainwright	Aug-96

## Previous Studies

	Title	AUTHOR	DATE
31	Remedial Investigation Report, Operable Unit 1	ENSR Consulting and Engineering	Sep-96
32	801 Drum Burial Site Supplemental 1996 Investigation	ENSR Consulting and Engineering	Jan-97
33	Feasibility Study Operable Unit 1	ENSR Consulting and Engineering	Feb-97
34	Proposed Plan for Remedial Action at Operable Unit 1	Fort Wainwright	Feb-97
35	Final Work Plan, Rhizosphere-Enhanced Phytoremediation Treatability Study	ENSR Consulting and Engineering	May-97
36	Record of Decision, Operable Unit 1	USA, USPEA & ADEC	Sep-97
37	Final Geophysical Report 801 Drum Burial Site	DOWL/Ogden	Dec-97
38	Letter Report: September 1997 Quarterly Well Sampling 801 Drum Burial Site.	ENSR Consulting and Engineering	Jan-98
39	Interim Progress Report, Rhizosphere-Enhanced Phytoremediation Treatability Study, Final.	ENSR Consulting and Engineering	Mar-98
40	Remedial Action Work Plan, Operable Unit 1	ENSR Consulting and Engineering	Apr-98
41	Letter Report, March 1998, Groundwater Sampling, 801 Drum Burial Site.	ENSR Consulting and Engineering	Jun-98
42	Remedial Action Report, Operable Unit 1	ENSR Consulting and Engineering	Jan-99
43	2nd Interim Progress Report, Rhizosphere Enhanced Phytoremediation Treatability Study, Operable Unit 1	ENSR Consulting and Engineering	Mar-99
44	1999 Annual Phytoremediation Progress Report (3rd Annual Progress Report), OU1	ENSR Consulting and Engineering	Apr-00
45	Groundwater Sampling - 801 Drum Burial Site.	ENSR Consulting and Engineering	Jun-00
46	Groundwater Sampling, 801 Drum Burial Site	ENSR Consulting and Engineering	Jun-00
47	Revised Preliminary Draft Remedial Action Report, OU1	ENSR Consulting and Engineering	Aug-00
48	Revised Interim Remedial Action Report	ENSR Consulting and Engineering	Aug-00
49	Final Operations, Maintenance and Monitoring for Operable Unit 1, 801 Drum Burial Site treatment system	ENSR Consulting and Engineering	Dec-00
50	Final Operations, Maintenance and Monitoring Manual for 801 Drum Burial Site Treatment System, Fort Wainwright	Hart Crowser	Dec-00
51	Annual Monitoring Report for 801 Drum Burial Site at Fort Wawinwright	ENSR Consulting and Engineering	Apr-01
52	Fourth and Final Annual Progress Report 2000 for Rhizosphere Enhanced Phytoremediation Study	ENSR Consulting and Engineering	Aug-01
53	Release Investigation Report/Corrective Action Plan, Abandoned Birch Hill Underground Storage Tank Farm Sites	Ecology and Environment, Inc.	
54	Work Plan for Lab Component for Rhizosphere Phytomediation Treatability Study.	ENSR Consulting and Engineering	
55	Final 2002 801 Drum Burial Site Groundwater Monitoring Report FWA AK May 02	ENSR	May-02
56	Work Plan for Confirmation Soil Sampling, Phyto Study Site Closure, January 2003	Swaim	February-03
57	Final SSHP & QAPP for 801 Drum Burial Site GW Monitoring, FWA	ENSR	May-03

# Previous Studies

	Title	AUTHOR	DATE
<b>Operable Unit 2</b>			
1	Final Remedial Action Report, DRMO Yard and Bldg 1168	ENSR	2000
2	Remediation System Operations Report, DRMO	Hart Crowser	2000
3	Endangerment Assessment for FTW 150 Unit Family Housing Project-Data Acquisition Plan	URS Corporation	Oct-86
4	Confirmation Study: Endangerment Assessment for FTW Family Housing Area, Volume 1 of 2	URS Corporation	Apr-87
5	Confirmation Study: Endangerment Assessment for FTW Family Housing Area, Executive Summary	URS Corporation	Apr-87
6	Risk Assessment for Proposed Family Housing Facilities	Ecology & Environment	Nov-88
7	US Army IRP, The North Post Site, FTW, Environmental Assessment	Corps of Engineers, Ak. Dist	May-90
8	Design Analysis for Soil Remediation Project at North Post	Ecology & Environment	May-91
9	Solid Waste Management Plan, Preliminary Source Evaluation	Harding Lawson Assoc.	Oct-91
10	Compliance Agreement between the ADEC and the US Army, 6th Infantry Division	Alaska Department of Environmental	Apr-92
11	Work Plan, OU2, PSE2, Phase 1	Harding Lawson Assoc.	May-92
12	Work Plan, DRMO, OU2, PSE2, Phase 2, 2 Vols.	Harding Lawson Assoc.	Sep-92
13	Operations Final Report for Drummed Waste Removal, 4 Vol	OHM Remed. Svcs	Feb-93
14	Sampling and Analytical Final Report, FTW: Final Report-Drum Waste Removal, Volume II	OHM Remed. Svcs	Feb-93
15	Final OU2, Preliminary Source Evaluation 2, Phase 1, 3 Vol	Harding Lawson Assoc.	Apr-93
16	Temporary Stockpile Plan North Post Site	Laidlaw Env. Svcs.	Apr-93
17	Biopile Work Plan North Post Site Remediation	Laidlaw Env. Svcs.	Jun-93
18	Work Plan, OU2, PSE2, Support Work, FTW, All Areas	Harding Lawson Assoc.	Jul-93
19	OU2, Preliminary Source Evaluation 2, Support Work, All Areas	Harding Lawson Assoc.	Jul-93
20	Final Report, OU2, PSE2, Phase 2, DRMO, FTW 2 Volumes	Harding Lawson Assoc.	Sep-93
21	Operable Unit 2, Preliminary Source Evaluation 2, Support Work, Bldg. 1168	Harding Lawson Assoc.	Apr-94
22	Final Management Plan, Operable Unit 2, Remedial Investigation/Feasibility Study	Harding Lawson Assoc.	Apr-94
23	North Post Site, Soil Pile Remediation, Contract DACA85-91-C-0043, Project Report	Laidlaw Env. Svcs.	Apr-94
24	Final OU2 Management Plan	Harding Lawson Assoc.	Nov-94
25	Work Plan Building 1168, Treatability Study	Harding Lawson Assoc.	Dec-94
26	OU2, Baseline Human Health Risk Assessment Approach	Harding Lawson Assoc.	Jan-95
27	Interim Report Building 1168 Treatability Study	Harding Lawson Assoc.	Jan-95
28	Human Health Risk Assessment, Operable Unit 2	Harding Lawson Assoc.	Jun-95
29	Release Investigation Report, North Post Site	Harding Lawson Assoc.	Dec-95
30	Operable Unit 2, Final Remedial Investigation Report, 3 Vols	Harding Lawson Assoc.	Jan-96
31	Technical Memorandum, December 1995 Monthly Monitoring Results, Building 1168 Treatability Study	Harding Lawson Assoc.	Jan-96
32	Technical Memorandum, January and February 1996 Monitoring Results, Building 1168 Treatability Study	Harding Lawson Assoc.	Mar-96
33	Ecological Risk Assessment Operable Unit 2	Harding Lawson Assoc.	Apr-96
34	Operable Unit 2, Feasibility Study	Harding Lawson Assoc.	Apr-96
35	PCB Resampling Analytical Results, Operable Unit 2	Harding Lawson Assoc.	Jul-96
36	Record of Decision for Operable Unit 2	USA, USEPA & ADEC	Jan-97
37	Review Comment Annotation Work Plan ROD Design Study	COE	Jan-97
38	Work Plan Record of Decision Design Study Operable Unit 2	Hart Crowser	Jan-97



# Previous Studies

	Title	AUTHOR	DATE
39	Technical Memorandum, Oct 1996, Quarterly Monitoring Results, Building 1168 Treatability Study	Harding Lawson Assoc.	Feb-97
40	Dec 1996 Quarterly Well Sampling - 801 Drum Burial Site	ENSR	Apr-97
41	Final Remedial Action Report, North Post Source Removal	OHM Remediation	May-97
42	Disposition of Review Comments - Draft Statement of Work and Schedule, OU 2 Remedial Design/Remedial Action	Harding Lawson Assoc.	Jun-97
43	Tech Memo North Post and DRMO Yard Treatability Study	Harding Lawson Assoc.	Aug-97
44	1996 Annual Report, Building 1168 Treatability Study	Harding Lawson Assoc.	Aug-97
45	Technical Memorandum, April 1997, Quarterly Monitoring Results, Building 1168 Treatability Study	Harding Lawson Assoc.	Sep-97
46	1997 Annual Report, Bldg 1168, Treatability Study	Harding Lawson Assoc.	Sep-97
47	Sampling Plan Addendum Former Building 1168 Release Investigation, Operable Unit 2	Hart Crowser	Oct-97
48	OU2 Precision, Accuracy, Representativeness, Completeness, and Comparability Analysis Data Quality Assessment	Harding Lawson Assoc.	Oct-97
49	Final Remedial Design/Remedial Action Plan, Operable Unit 2, Bldg 1168 Source Area	Harding Lawson Assoc.	Dec-97
50	Technical Memorandum, Jul and Oct 97, Quarterly Monitoring Results, Bldg 1168, Treatability Study	Harding Lawson Assoc.	Jan-98
51	Former Building 1168 Release Investigation, Operable Unit 2	Hart Crowser	May-98
52	1997 Remediation System Operation Report, Record of Decision Design Study, Operable Unit 2	Hart Crowser	May-98
53	Quarterly Monitoring Report, Nov 97-Apr 98, Bldg 1168 Treatability Study, Operable Unit 2	Hart Crowser	Jun-98
54	Monitoring Report for Apr 98 through Jul 98, Bldg 1168 Site, Treatability Study	Hart Crowser	Aug-98
55	Quarterly Monitoring Report, Bldg 1168 Treatability Study, OU2	Hart Crowser	Aug-98
56	Monitoring Report, Aug –Nov 1998, Bldg 1168	Hart Crowser	Jan-99
57	Record of Decision, Design Study, Operable Unit 2	Hart Crowser	Feb-99
58	Picket Wells Sampling Report, Apr 99, Sampling Event	Hart Crowser	May-99
59	Picket Well Sampling Report, Oct 99, Sampling Event	Hart Crowser	Oct-99
60	Picket Well Sampling Report, DRMO	Hart Crowser	Nov-99
61	March 30, 2000, Groundwater Sample Results, Bldg 1168	Hart Crowser	Aug-00
62	Chemical Data Report, Spring 2000, Groundwater Monitoring, DRMO Picket Wells.	Corps of Engineers, Alaska District	Sep-00
63	Final 1999 Comprehensive Annual Monitoring Report, DRMO	Hart Crowser	Nov-00
64	Final Operations, Maintenance, Monitoring Report, Bldg 1168	Hart Crowser	Dec-00
65	Final Operations, Maintenance and Monitoring Report for OU2, DRMO, Record of Decision Design Study Treatment System, (Vols I and II)	Hart Crowser	Dec-00
66	Remedial Systems Operations Report (ROD DS)	Hart Crowser	Apr-01
67	DRMO Comprehensive Annual Monitoring Report	Hart Crowser	May-01
68	Final Operations, Maintenance and Monitoring Manual	Hart Crowser	Jun-01
69	Picket Well Sampling and Three Party Treatment Systems Operation Technical Memoranda	Fairbanks Environmental Services	Oct-01
70	Biodegradation/Volatilization Bench Scale Treatability Study Results for TPH Contaminated Soils Located at North Post	Laidlaw Env. Svcs.	
71	OU2 Comprehensive Report, FWA	FES	May-02
72	OU2 DRMO 2001 Comprehensive Report, FWA AK May 2002	FES/Swaim	May-02
73	OU2 DRMO Picket Well Sampling Results Tech Memo FWA AK May 2002	FES/Swaim	May-02

# Previous Studies

	Title	AUTHOR	DATE
74	OU2 DRMO Water Supply Well Sampling Results Tech Memo FWA AK May 2002	FES/Swaim	May-02
75	Tech Memo: DRMO-1 Treatment System Expansion 35%	Northwind	Jun-02
76	Tech Memo: DRMO-5 Treatment System Expansion 35%	Northwind	Jun-02
77	Tech Memo: Probe Sampling & Analysis DRMO-4 Sub Area	Northwind	Sep-02
78	Tech Memo: Soil Vapor Extraction Well Sampling 3-Party AS/SVE Treatment System DRMO Yard	Northwind	Sep-02
79	Tech Memo: Level Survey of Soil & G/W monitoring points at DRMO Yard	Northwind	Mar-03
80	Tech Memo Groundwater Probe Sampling and Analysis, DRMO-4 Subarea Sept 2002	North Wind	Jun-03
81	Tech Memo SVE Well Sampling, 3-Party AS/SVE System, September 2002	North Wind	Jun-03
82	Tech Memo: DRMO-1 Historical Data Review	Northwind	Jul-03
83	Annual Report Addendum, Operable Unit 2, dated May 27, 2003	North Wind	Jul-03

## Operable Unit 3

1	Fairbanks Fuel Terminal, Part I, Sampling/Analysis, QA/QC Plan	Ecology & Environment	
2	Hydrogeology at the Fairbanks Fuel Terminal	Ecology & Environment	Sep-91
3	Chemical Data Acquisition Plan, Fairbanks Fuel Terminal, MAPCO Refinery	Ecology & Environment	Nov-91
4	Fairbanks Fuel Terminal Work Plan Part I Sampling Analysis Plan	Ecology & Environment	Jan-92
5	Draft Potential Interim Remedial Actions	Ecology & Environment	Sep-92
6	Draft Potential Interim Remedial Actions	Ecology & Environment	Oct-92
7	Draft Potential Interim Remedial Actions	Ecology & Environment	Jan-93
8	Final Management Plan, RI/FS	Ecology & Environment	Jan-93
9	Draft Final Community Relations Plan	Ecology & Environment	Jan-93
10	Final Management Plan	Ecology & Environment	Feb-93
11	Remedial Investigation, Volumes 1 thru 4	Ecology & Environment	Feb-93
12	Draft Work Plan: Part I, Sampling, Analysis & QA/QC Plan for Fairbanks-Eielson Pipeline, MAPCO Refinery	Corps of Engineers, Ak. Dist.	Nov-90
13	Draft IRP Conceptual Model for OU3: Fairbanks Fuel Terminal, Rail Off-Loading Facility, Fairbanks-Eielson Pipeline	Corps of Engineers, Ak. Dist.	May-92
14	Geological and Geophysical Investigations of the Hydrogeology of Operable Unit 3, Interim Draft Report, A Contribution to OU3 Remedial Investigations	U.S. Army Cold Regions Research & Engineering Laboratory	Aug-94
15	Modeling of Groundwater Flow and Contaminant Transport at Ft. Wainwright, Ak - summary of Project Activities Relating to the Fuel Terminal Area of OU3, An Interim Report	Army Cold Regions Research & Engineering Lab, Water Research Center, University of Alaska, U.S. Geological Survey, Water Resource	Sep-94
16	Fairbanks-Eielson POL Pipeline Soil Gas Survey, MAPCO Refinery, Eielson AFB	Hart Crowser	Dec-89
17	Toxicity Characteristic Leaching Procedure (TCLP)-Lead Sampling, Remedial Area 1A	Ecology & Environment, Inc.	Sep-96
18	Addendum to Final Management Plan for Remedial Investigation/Feasibility Study, Remedial Area 1A	Ecology & Environment, Inc.	Jul-96
19	Record of Decision for Operable Unit 3	USA, USEPA, ADEC	Apr-96
20	Final Work Plan Design Verification Study, Operable Unit 3	Hart Crowser	Sep-96



# Previous Studies

	Title	AUTHOR	DATE
21	OU3, Remedial Design/Remedial Action Statement of Work	Corps of Engineers, Ak. Dist.	Apr-96
22	Review Comment Annotation, Draft 1996 Monitoring Report	USEPA	Jan-97
23	Quarterly Monitoring Report, MP 15.75, FEP Design Verification Study	Hart Crowser	Feb-97
24	95% Design Analysis Operable Unit 3, Area 1A Birch Hill Tank Farm, and Drawings	Ecology & Environment, Inc.	Mar-97
25	1996 Monitoring Report, Design Verification Study	Hart Crowser	Mar-97
26	Birch Hill Tank Farm (Remedial Area 1A), Submittal of 95% Soil Washing Remedial Design, Annotated Responses to Comments on 65% Soil Washing	Ecology & Environment, Inc.	Mar-97
27	Design Analysis 60 Percent Design, Design Verification Study	Hart Crowser	May-97
28	60 Percent Design, Drawings, Cost Estimate, Construction Specifications, Design Verification Study	Hart Crowser	May-97
29	Underground Pipeline Records Search Design Verification	Hart Crowser	Jun-97
30	Quarterly Monitoring Report MP 15.75, Design Verification	Hart Crowser	Jun-97
31	Review Comment Annotation, Design Verification, 60% Design	USEPA	Jul-97
32	1998 Field Season Work Plan	Hart Crowser	Mar-98
33	Pump Test Work Plan, Birch Hill Tank Farm	Hart Crowser	Sep-98
34	Birch Hill Tank Farm Groundwater Investigation	Hart Crowser	Jul-98
35	Site Investigation and Treatability Study, Work Plan, Milepost 2.7 and 3.0, Fairbanks-Eielson Pipeline	Hart Crowser	Aug-98
36	Quarterly Monitoring Report, Milepost 15.75, Fairbanks-Eielson Pipeline Design Verification Study	Corps of Engineers, Ak. Dist.	Nov-97
37	Quarterly Monitoring Report, Milepost 15.75, FEP Design Verification Study	Hart Crowser	Feb-98
38	Hydrological Evaluation of Remedial Area 1B.	CH2M Hill	Dec-98
39	Preliminary Model of Permafrost and Aquifers	CRREL	Dec-98
40	1998 Monitoring Report, Design Verification Study	Hart Crowser	May-99
41	Technical Memorandum: Installation and Sampling Bedrock Monitoring Wells, Birch Hill Tank Farm	Corps of Engineers, Ak. Dist.	Jul-99
42	Hydrogeological Investigation at Birch Hill Tank Farm	CRREL	Dec-99
43	Implementation and Operations Plan	Hart Crowser	Dec-99
44	Field Status Report	Swaim/Hart Crowser	Nov-99
45	Work Plan	Swaim/Hart Crowser	2000
46	1999 Comprehensive Monitoring Report, Design Verification	Hart Crowser	May-00
47	Sample Set of Groundwater Flow Data from Aug 95-Dec 99.	CRREL	Dec-00
48	Bedrock and Structure Characterization at the Birch Hill Tank Farm Truck Fuel Stand	CRREL	Jun-00
49	Draft Operations, Maintenance and Monitoring Plans, Valve Pit A and the Eight Car Header	Hart Crowser	Sep-00
50	Groundwater Flow Measurements from Aug 95-Dec 00, Mar 01.	CRREL	Mar-01
51	Chemical Data Quality Assessment Report for Aug-Sep 00, Groundwater Monitoring at Mileposts 2.7, 3.0 & 15.75	Corps of Engineers, Ak. Dist.	Feb-01
52	Birch Hill Tank Farm Monitoring Well Installation & Sampling	Corps of Engineers, Ak. Dist.	Feb-01
53	Oxidizer Cost/Benefit Analysis Report for Operable Units 3 & 5	Hart Crowser	Apr-01
54	ROLF, Groundwater Modeling Report	CH2M Hill	Apr-01
55	Preliminary Draft Remedial Action Report	Hart Crowser	May-01
56	2000 Comprehensive Monitoring Report	Hart Crowser	May-01
57	Treatment Systems Operations, Maintenance, Monitoring Manuals	Hart Crowser	Jun-01

# Previous Studies

	Title	AUTHOR	DATE
58	Groundwater Modeling Report for RA1B	CH2M Hill	Jun-01
59	Bentley Trust Well Logs	Corps of Engineers, Ak. Dist.	Jun-01
60	Work Plan, SAP, QAPP, and HSP	Fairbanks Environmental Services	Nov-01
61	Assessment of MP 2.7 and 3.0 Source Areas, OU3 FWA AK May 2002	FES	May-02
62	2001 Monitoring Report, Operable Unit 3, Fort Wainwright, Alaska (CD)	FES	May-02
63	Final IRAR	FES	September-02
64	Former Buildings 1128, 1129, and 1130 Investigation	FES	November-02
65	OM&M Manual, Birch Hill Tank Farm Product Recovery System (addendum to 2001 ) dated Nov 2002	FES	January-03
66	2003 Work Plan, Operable Unit 3, Fort Wainwright Alaska dated Nov 2002	FES	January-03
67	2002 Monitoring Report, OU3	FES	May-03
68	MP 2.7 and 3.0 Treatment Cell Decommissioning and Sampling Plan Jan 2003	FES	June-03
69	2003 Work Plan, Operable Unit 3, Fort Wainwright, Alaska dated June 2003	FES	July-03
70	Operable Unit 3 Spring 2003 EDF, EDCC files, tech memo, sampling results, chain of custody forms	FES	July-03

## Operable Unit 4

1	Groundwater Monitoring Landfill Plume, QA Report and Chemical Analysis	Corps of Engineers, Ak. Dist.	Oct-89
2	Ft. Wainwright Landfill Workplan	Ecology & Environment	Feb-90
3	Final FI Plan for the confirmation of Fire Training Pits	Ecology & Environment	Apr-91
4	Ft. Wainwright Landfill Report	Ecology & Environment	Jun-91
5	Final Report, Power Plant Coal Yard	Corps of Engineers, Ak. Dist.	Jul-91
6	Results of Chemical Analyses for FTW Fire Training Pits	Corps of Engineers, Ak. Dist.	Aug-91
7	Progress Report for the Confirmation of Fire Training Pits	Ecology & Environment	Feb-92
8	Draft Final Management Plan for RI/FS	Ecology & Environment	Mar-93
9	Final Management Plan	Ecology & Environment	Apr-93
10	Operable Unit 4 Data Presentation	Ecology & Environment	Feb-94
11	Approach Document for the Baseline Human Health Risk Assessment	Ecology & Environment	Jul-94
12	Remedial Investigation Report	Ecology & Environment	Aug-94
13	Risk Assessment Approach Document	Ecology & Environment	Nov-94
14	Final Risk Assessment Report, Human Health Risk Assessment and Ecological Risk Assessment	Ecology & Environment	Aug-95
15	Feasibility Study Report	Ecology & Environment	Nov-95
16	Record of Decision for Operable Unit 4	USA, USEPA, ADEC	Sep-96
17	Landfill Cap, Operable Unit 4, 100% Design Contract Documents and Drawings	Dowl Engineers	Dec-96
18	Comments on the 95% Design Analysis for the Landfill Cap	USEPA	Dec-96
19	Site Assessment Report, Remove Soil at Burn Pits	Rockwell Environmental	Jan-97
20	Additional Comments on the Drawings and Technical Specifications for the Landfill Cap Project	DPW	Jan-97

# Previous Studies

	Title	AUTHOR	DATE
21	Response to Additional Comments on Drawings and Technical Specifications for the Landfill Cap Project	Corps of Engineers, Ak. Dist.	Feb-97
22	Storm Water Pollution Prevention Plan, Landfill Cap	AGRA Earth &	May-97
23	Site Plan Landfill Cap Project	Dowl/Ogden Joint Venture	Jun-97
24	Accident Prevention and Safety Plan, Landfill Cap	Alaska Road Boring Co.	Jun-97
25	Quality Control Plan, Landfill Cap	Alaska Road Boring Co.	Jun-97
26	Final 1997 System Monitoring Report Treatment System, Coal Storage Yard	Dowl/Ogden Joint Venture	Jul-97
27	Environmental Site Assessment, Landfill Cap	Alaska Road Boring Co.	Oct-97
28	1997 GW Sampling, Final Report, Landfill Monitoring Wells	Dowl/Ogden Joint Venture	Feb-98
29	July 1997 Groundwater Sampling Final Report: Record of Decision Remedial Action Design Study	Dowl/Ogden Joint Venture	Feb-98
30	November 1997 Groundwater Sampling Final Report: Record of Decision, Remedial Action Design Study	Dowl/Ogden Joint Venture	Apr-98
31	Final Sampling Report, Sep 97-May 98	Dowl/Ogden Joint Venture	Aug-98
32	Technical Memorandum: Landfill Cap Sampling	Corps of Engineers, Ak. Dist.	Aug-98
33	Memo, Landfill Cap Project Post- Construction Inspection	Dowl/Ogden Joint Venture	Sep-98
34	Final Sampling Report, OU4 (Nested wells)	Dowl/Ogden Joint Venture	Sep-98
35	Final Landfill Monitoring Wells, Groundwater Sampling Report	Dowl/Ogden Joint Venture	Sep-98
36	Landfill Remedial Action Final Work Plan	Dowl/Ogden Joint Venture	Dec-98
37	Groundwater Sampling Report, Landfill	Dowl/Ogden Joint Venture	Dec-98
38	Groundwater Sampling Report, Final Report Landfill	Dowl/Ogden Joint Venture	Dec-98
39	Final Remedial Action Report, Landfill	Dowl/Ogden Joint Venture	Mar-99
40	Final Remedial Action Report, Coal Storage Yard	Dowl/Ogden Joint Venture	Apr-99
41	Oct 98, Groundwater Sampling Report, Final Report, ROD RADS, Coal Storage Yard	Dowl/Ogden Joint Venture	May-99
42	May 99, GW Sampling Report, ROD RADS, (Coal Storage Yard)	Dowl/Ogden Joint Venture	May-99
43	Technical Memorandum: OU4, FWA, Landfill Post-Construction Inspection.	Dowl/Ogden Joint Venture	Jul-99
44	Mar/Jun 99 GW Sampling Report, Landfill Monitoring Wells	Dowl/Ogden Joint Venture	Jul-99
45	Landfill Cap Inspection Report.	Dowl/Ogden Joint Venture	Sep-99
46	Groundwater Sampling Report, Draft, Landfill Monitoring Wells	Dowl/Ogden Joint Venture	Mar-00
47	August 99 Groundwater Sampling Report, Final, OU4, Landfill	Dowl/Ogden Joint Venture	Aug-00
48	Final 1999 Design Verification Study Report, Coal Storage yard	Dowl/Ogden Joint Venture	Sep-00
49	March 2000 GW Sampling Report, Landfill Monitoring Wells	Dowl/Ogden Joint Venture	Dec-00
50	Coal Storage yard, Raw Data Report	ASCI/NANA	Jan-01
51	Final Operations, Maintenance and Monitoring Reports, Coal Storage yard, Vol I and II	Hart Crowser	Jan-01
52	Final Operations, Maintenance and Monitoring Report, Landfill	Hart Crowser	Jan-01
53	Coal Storage Yard Raw Data Report	ASCI/NANA	Jan-01
54	Final Operations, Maintenance & Monitoring Manual, Coal Storage Yard, Vol. I and II	Hart Crowser	Jan-01
55	Final Operations, Maintenance & Monitoring Manual, Landfill	Hart Crowser	Jan-01
56	Raw Data Report for Landfill	ASCI/NANA/Dowl	Apr-01
57	Raw Data Report for Coal Storage Yard	ASCI/NANA/Dowl	Jun-01
58	Final Aug 00 Groundwater Sampling Report	Dowl/Ogden Joint Venture	Sep-01
59	Final Monitoring Report, Coal Storage Yard 2000	Dowl/Ogden Joint Venture	Oct-01
60	Coal Storage Yard, Fall 2001 Raw Monitoring Data	ASCI/NANA/Dowl	Dec-01
61	Fall 2001 Raw Monitoring Data	ASCI/NANA/Dowl	Dec-01
62	Coal Storage Yard Fall 2001 Raw Soil Sampling Data	ASCI/NANA/Dowl	Dec-01

# Previous Studies

	Title	AUTHOR	DATE
63	Landfill, Final Monitoring Well Report	ENSR	Jan-02
64	Final Monitoring Well Replace Jan 2002	ENSR	February-02
65	CSY Spring 2002 Raw Data Report	ASCI/NANA	September-02
66	Soil Boring Installation Action Report for Coal Storage Yard, November 2002	NorthWind	November-02
67	Field Notes for gw and soil sampling at Landfill and CSY Sept/October 2002	North Wind	November-02
68	Work Plan for GWMonitoring and Data Analysis at the CSY October 2002	North Wind	November-02
69	Work Plan for GWMonitoring and Data Analysis at the Landfill Source Area	North Wind	November-02
70	Sampling Data Report: Fall Sampling at OU4 Landfill December 2002	North Wind	January-03
71	Investigated Derived Waste Report OU4 Landfill September-October 2002	North Wind	January-03
72	Investigated Derived Waste Report OU4 Coal Storage Yard September 2002	North Wind	January-03
73	IDW Report Coal Storage Yard, September 2002	North Wind	February-03
74	IDW Report Landfill, September-October 2002	North Wind	February-03
75	Final Work Plan for Groundwater Monitoring and Data Analysis at Landfill October 2002	North Wind	May-03

## Operable Unit 5

1	Horizontal Well Treatability Study Annual Monitoring Report.	Hart Crowser	1999
2	Drawings, Planned Remedial Action Augmentation, WQFS1A	ENSR/VOOM/CH2M Hill	2000
3	Work Plan for the Remediation of Contaminated Soil Stockpiles	Ecology & Environment	Mar-91
4	Work Plan Documents, Birch Hill UST Site	Ecology & Environment	Apr-92
5	Work Plan for North Post Plume Investigation	U.S. Corps of Engineers, AK Dist.	Jan-94
6	Chemical Data Report for the Fort Wainwright Small Arms Range	U.S. Corps of Engineers, AK Dist.	Oct-94
7	Letter Report, CRREL Flow Probe Well Installation	Harding Lawson Assoc.	Sep-95
8	Final Postwide Risk Assessment Approach Document	Harding Lawson Assoc.	Oct-95
9	Final Chemical Report for Building 3018	U.S. Corps of Engineers, AK Dist.	Oct-95
10	North Airfield Groundwater Investigation (PSE)	Harding Lawson Assoc.	Nov-95
11	Final Postwide Field Sampling Plan	Harding Lawson Assoc.	Dec-95
12	Remedial Action Objectives, Operable Unit 5 Feasibility Study	Harding Lawson Assoc.	Jun-96
13	Alternative Evaluation Report Operable Unit 5 Feasibility Study	Harding Lawson Assoc.	Jul-96
14	Post-wide Risk Assessment Data Validation Summary	Harding Lawson Assoc.	Oct-96
15	Post-wide Risk Assessment Precision, Accuracy, Representativeness, Completeness, and Comparability Analysis Data Quality Assessment	Harding Lawson Assoc.	Nov-96
16	Precision, Accuracy, Representativeness, Completeness and Comparability Analysis Data Quality Assessment, RI	Harding Lawson Assoc.	Nov-96
17	Final Remedial Investigation Report	Harding Lawson Assoc.	Nov-96
18	Disposition of Review Comments Draft Post-wide Risk Assessment	Harding Lawson Assoc.	Dec-96
19	Minutes of Review Conferences, Draft Post-wide Risk Assessment	Harding Lawson Assoc.	Dec-96
20	Laboratory Bioremediation Study, Operable Unit 5	Harding Lawson Assoc.	Jan-97

## Previous Studies

	Title	AUTHOR	DATE
21	Comments on Three Precision, Accuracy, Representativeness, Completeness, and Comparability Analysis documents for OU-s 2 and 5	USEPA	Jan-97
22	Conceptual Approach for Integrating Post-wide Risk Assessment Issues into the Operable Unit 5 Feasibility Study	Harding Lawson Assoc.	Feb-97
23	Review Comments on Draft Work Plan, Operable Unit 5, West QFS Sub-Area 2 Treatability Study	Harding Lawson Assoc.	Mar-97
24	Work Plan, Operable Unit 5, Sub Area 1, WQFS, Horizontal Well Treatability Study	Harding Lawson Assoc.	Mar-97
25	Work Plan, West QFS Sub-Area 2 Treatability Study	Harding Lawson Assoc.	Mar-97
26	Addendum to Operable Unit 5, Remedial Investigation Report	Harding Lawson Assoc.	Jun-97
27	Intrinsic Remediation Treatability Study Work Plan, East Quartermasters Fuel System Area, Delivery Order 14	CH2M Hill	Aug-97
28	Quarterly Report, OU5, West Quartermaster's Fueling System, Sub-Area 2, Oxygen Releasing Compound Treatability Study	Harding Lawson Assoc.	Aug-97
29	Final Work Plan for 1997 Chena River Aquatic Assessment Post-wide Risk Assessment	ABR, HLA & CH2M Hill	Sep-97
30	Progress Report on Autumn 1997 Field Work, Chena River Aquatic Assessment, Post-wide Risk Assessment	ABR, Inc.	Oct-97
31	Status Report 1, Horizontal Well Treatability Study	Hart Crowser	Oct-97
32	Technical Memorandum: OU5 Feasibility Study Groundwater Modeling Results	CH2M Hill	Oct-97
33	Review Comments, Draft Remedial Investigation Report	Harding Lawson Assoc.	Nov-97
34	Interim Report, Operable Unit 5, Sub-Area WQFS1, Horizontal Well Treatability Study	Harding Lawson Assoc.	Dec-97
35	Quarterly Report, West Quartermaster's Fueling System, Sub-Area 2, Oxygen Releasing Compound Treatability Study	Harding Lawson Assoc.	Jan-98
36	Proposed Approach to the Source Area Treatability Study, West Quartermaster's Fueling System Area	CH2M Hill	Jan-98
37	Addendum Sheets to Quarterly Report, West Quartermaster's Fueling System, Sub-Area 2, Oxygen Releasing Compound Treatability Study	Harding Lawson Assoc.	Feb-98
38	Final Work Plan for West Quartermasters Fueling Station Retaining Wall Removal	Oil Spill Consultants	Mar-98
39	Technical Memorandum: Oxygen Releasing Compound Treatability Study	Harding Lawson Assoc.	Mar-98
40	Quarterly Monitoring Report (Oct 3, 1997-Jan 28, 1998), Horizontal Well Treatability Study	Hart Crowser	Mar-98
41	Vertical Sparging Curtain Treatability Study Work Plan, West Quartermaster's Fueling System, Subarea WQFS2	CH2M Hill	Mar-98
42	Technical Memorandum, April 1998, Groundwater & Product Sampling, WQFS2.	CH2M Hill	May-98
43	Chena River Aquatic Assessment	ABR, Inc.	Jun-98
44	Final Operable Unit 5 Feasibility Study	CH2M Hill	Jun-98
45	Proposed Plan for Remedial Action	CH2M Hill	Jun-98
46	Natural Attenuation of Chlorinated Hydrocarbon Contamination at Fort Wainwright, Alaska: A Hydrogeochemical and Microbiological Investigation Workplan.	US Geological Service	Jun-98
47	Six-Phase Soil Heating, Radio Frequency Heating, and Laboratory Column Study Work Plan, West Quartermaster's Fueling System	CH2M Hill, UAF, Geosphere	Jul-98



## Previous Studies

	Title	AUTHOR	DATE
48	Progress Report on Spring 1998 Field Work, Chena River Aquatic Assessment, Post-wide Risk Assessment.	ABR, Inc.	Jul-98
49	Source Area Treatability Study Work Plan, West Quartermaster's Fueling System	CH2M Hill	Aug-98
50	Final Report, Oxygen Release Compound Treatability Study, OU5, West Quartermaster's Fueling System, Sub-area 2	Harding Lawson Assoc.	Aug-98
51	Technical Memorandum, Chena River Aquatic Assessment, Spring and Summer, 1998.	ABR, Inc. and CH2M Hill	Sep-98
52	Technical Memorandum: Addendum for Building 1070 Site, Intrinsic Remediation Treatability Study Work Plan, EQFS	CH2M Hill	Sep-98
53	Technical Memorandum: Modeling of Air Sparging Effects on Groundwater in WQFS2	CH2M Hill	Nov-98
54	Installation Report, Air Sparge Curtain Treatability Study	CH2M Hill	Feb-99
55	Monitoring Well Survey and Groundwater Modeling	ENSR	Feb-99
56	Installation Report, Source Area Treatability Study	CH2M Hill	Feb-99
57	Technical Memorandum: Installation of Soil Borings and Monitoring Wells, Data Gap Investigation	CH2M Hill	Feb-99
58	Quarterly Monitoring Report, OU5 Treatability Study, FWA, Horizontal Well	Hart Crowser	Feb-99
59	Chena River Aquatic Assessment Program, 1997-98, Vol. I-III	ABR/CH2M Hill	Mar-99
60	Quarterly Monitoring Report, 1 Dec 98-3 Mar 99, Treatability Study	Hart Crowser	Apr-99
61	Bldg 1060 Treatability Study Annual Report Year 4, Jan 98-Dec 98	CH2M Hill	May-99
62	Source Area TS WQFS Semiannual Monitoring Report	CH2M Hill	Jul-99
63	Final Six-Phase Soil Heating/Column Study Treatability Study Work Plan	CH2M Hill	Aug-99
64	Chena River Aquatic Assessment Program, FWA, Spring and Summer 1998.	ABR	Sep-99
65	Quarterly Monitoring Report, Horizontal Well/Driven Progress, WQFS1	Hart Crowser	Sep-99
66	Chemical Data Report, WQFS	Corps of Engineers Geotechnical Branch	Oct-99
67	TM: Evaluating Remedial Operations for Implementation	CH2M Hill	Oct-99
68	1998 and 1999 Chena River Surface Water Sampling Technical Memorandum, WQFS2	CH2M Hill	Dec-99
69	Semi-Annual Monitoring Report, Vertical Air Sparging Curtain, WQFS2	CH2M Hill	Dec-99
70	Tech Memo: Chena River Aquatic Assessment Program, OU5, Interim Report	CH2M Hill	Dec-99
71	March 30, 2000, Groundwater Sampling Results, Bldgs 2063 and Apple Road	Alaska District Corps of Engineers	Mar-00
72	Annual Air Sparging Curtain/Source Area monitoring Report, WQFS1 and 2, OU5	CH2M Hill	Mar-00
73	Annual Monitoring Report, Horizontal Wells	Hart Crowser	Mar-00
74	Building 1060 West, Remedial Action Work Plan	CH2M Hill	Apr-00
75	Building 1060W, Remedial Action Work Plan	CH2M Hill	Apr-00
76	WQFS Remedial Action Work Plan, Final	CH2M Hill	Apr-00
77	Time to Cleanup Tool: Spreadsheet Documentation	CH2M Hill	May-00
78	Final PAH Evaluation Work Plan, WQFS2	CH2M Hill	May-00
79	Bldg 1060 Treatability Study, Annual Report, Year 5	CH2M Hill	May-00

## Previous Studies

	Title	AUTHOR	DATE
80	Final PAH Evaluation Work Plan, WQFS2	CH2M Hill	May-00
81	Bldg 1060 Treatability Study Annual Report, Year 5	CH2M Hill	May-00
82	Time to Clean-Up Tool, Spreadsheet Documentation	CH2M Hill	May-00
83	In Situ Air Sparging Treatment Efficiency Tracer Testing	CH2M Hill	Jun-00
84	PAH Evaluation Work Plan, WQFS2	CH2M Hill	Jun-00
85	Soil Boring and Monitoring Well Logs, Spring 00 Field Activities at Bldgs 2060	Alaska District Corps of Engineers	Jun-00
86	Radio Frequency Heating and Six Phase Soil Heating Treatability Studies, Nutrient Addition Work Plan Addendum	CH2M Hill	Jun-00
87	Soil Borings and Groundwater Monitoring Well Logs, Field Activities at Bldgs 2063 and Operable Unit 5 (Apple Road)	Alaska District Corps of Engineers	Jun-00
88	OU5 Monitoring Well Installation (Apple Road)	Alaska District Corps of Engineers	Jul-00
89	Radio Frequency Heating/Six Phase Soil Heating Treatability Study Nutrient Addition Work Plan Addendum.	CH2M Hill	Jul-00
90	Vertical Air Sparging Curtain/Source Area Treatability Study, WQFS	CH2M Hill	Jul-00
91	Vertical Sparging Curtain Treatability Study WQFS Semi-Annual Report, Year 2	CH2M Hill	Jul-00
92	Monitoring Well Installation (Apple Road), Tech Memo	Alaska District Corps of Engineers	Jul-00
93	Final Chemical Report for Monitoring Well Installation and Sampling, Apple Road	Alaska District Corps of Engineers	Jul-00
94	Final Tech Memo: Site Safety and Health Plan, WQFS3 and 1060 West	Northwind	Aug-00
95	Final Tech Memo Site Safety & Health Plan, WQFS3 & 1060W	Northwind	Aug-00
96	Final, Column Study Report, WQFS1	CH2M Hill	Sep-00
97	Final Column Study Report, WQFS1, Operable Unit 5	CH2M Hill	Sep-00
98	Chemical Data Report, WQFS, OU5	Alaska District Corps of Engineers	Oct-00
99	After Action Report: Bldg 3564 and Soil Heating Treatability Study Soil Borings	CH2M Hill	Nov-00
100	Intrinsic Remediation Evaluation, EQFS	CH2M Hill	Nov-00
101	Memo: After Action Report, Soil Heating Treatability Study Soil Borings	CH2M Hill	Nov-00
102	Operable Unit 5, WQFS1C Remedial Action Design Drawings	ENSR/Voom/CH2M Hill	Nov-00
103	Intrinsic Remediation Evaluation, EQFS	CH2M Hill	Nov-00
104	Final 1999 Groundwater Sampling, WQFS	CH2M Hill	Dec-00
105	Design Drawings, Operable Unit 5, WQFS1A Remedial Action	ENSR/Voom/CH2M Hill	Dec-00
106	Final 1999 Groundwater Sampling, WQFS	CH2M Hill	Dec-00
107	Air Sparging Curtain and Source Area Treatability Study, 1999 Annual Report	CH2M Hill	Jan-01
108	Operable Unit 5, WQFS1B, Remedial Action Design Drawings	ENSR/Voom/CH2M Hill	Jan-01
109	Final Spring 1999 Groundwater Sampling, EQFS	CH2M Hill	Feb-01
110	Spring 1999 Groundwater Sampling, EQFS	CH2M Hill	Feb-01
111	Tech Memo: Apple Street Groundwater Investigation, OU5	Northwind	Feb-01
112	Horizontal Well Treatment System Final 2000 Annual Monitoring	Hart Crowser	Mar-01
113	WQFS3, Final Soil Vapor Extraction/Air Sparging Remedial Action Work Plan	Northwind	Apr-01
114	1060W, Final Soil Vapor Extraction/Air Sparging Remedial Action Work Plan	Northwind	Apr-01

## Previous Studies

	Title	AUTHOR	DATE
115	Construction Report for WQFS3/1060W, Remedial Systems	Northwind	Apr-01
116	Groundwater Modeling at OU5	CH2M Hill	Apr-01
117	Six Phase Soil Heating and Radio Frequency Heating, Treatability Study Final Report, WQFS	CH2M Hill	Apr-01
118	Final Design Drawings for Treatment System at WQFS1A	ENSR/Voom/CH2M Hill	May-01
119	Revised Site Safety & Health Plan, OU5	Northwind	May-01
120	Final Tech Memo for Construction Activities at WQFS1A, 1C&2	Northwind	May-01
121	WQFS2 Vertical Air Sparging Curtain Treatability Study Year 3, Semi-Annual Report	CH2M Hill	May-01
122	Source Area Remedial Action Work Plan	CH2M Hill	May-01
123	OU5 Final Remedial Action Design Drawings for WQFS2 & 1C	ENSR/Voom/CH2M Hill	Jun-01
124	EQFS Groundwater Monitoring Well Sampling Program Summary and Diagrams	Northwind	Sep-01
125	Final Bldg 1060W Remedial System Operations, Maintenance and Monitoring Manual	Northwind	Nov-01
126	Mid-Year Tech Memo for Bldgs 1060W & WQFS3 Remedial Systems	Northwind	Dec-01
127	WQFS Nutrient Amendment Groundwater Sampling and Summary Report for 2000	CH2M Hill	Dec-01
128	OU5 Air Sparge Curtain and Source Area Treatability Study 2000 Annual Report	CH2M Hill	Dec-01
129	Operable Unit 5 Feasibility Study	Harding Lawson Assoc.	
130	1998-99 Chena River Surface Water Sampling Tech Memo	CH2M Hill	
131	Chena River Aquatic Assessment Program	ABR/CH2M Hill	
132	Approach to Estimating Cleanup Times, WQFS	CH2M Hill	
133	Semi Annual Monitoring Report, Vertical Air Sparging Curtain, WQFS	CH2M Hill	
134	OU5, WQFS, PAH Evaluation Report, FWA	CH2M Hill	Apr-02
135	Final Work Plan for the 2002 Chena River Aquatic Assessment Program, FWA AK	CH2M Hill	Apr-02
136	Project Schedule for GW Data Collection & Trend Analysis	Northwind	May-02
137	OU5 Air Sparging Curtain Treatability Study Analytical Data, FWA AK April 2002	CH2M Hill	May-02
138	OU5 Source Area Treatability Study Analytical Data, FWA AK, April 2002	CH2M Hill	May-02
139	Project Schedule for Horizontal Well Optimization, Indoor Air @ 1060, Updated QAPP	Northwind	Jun-02
140	G/W Contaminant Data Collection & Trend Analysis Work Plan	Northwind	Jun-02
141	WQFS Sub-Area 3 & Bldg 1060W Remediation Systems 2001 Annual Report	Northwind	Jun-02
142	WQFS1/WQFS2 Post Construction Report, OU5, FWA	Northwind	Jun-02
143	Project Schedule for Source Area Remediation System Refractory Lining Repair	Northwind	Aug-02
144	Indoor Air Monitoring, Building 1060W	Northwind	Aug-02
145	Final Groundwater Contamination Data Collection Work Plan & SSHP	Northwind	Oct-02
146	AS/SVE OM&M Project Schedule OU5	Northwind	Nov-02
147	2002 Interim Remedial Action Report September 2002	CH2MHill	November-02
148	Source Area Treatability Study, 2001 Annual Report, OU5	CH2M Hill	Dec-02
149	FINAL Sparge Curtain Source Area & Horizontal Well Remediation System 2001 Annual Rpt	Northwind	Jan-03



# Previous Studies

	Title	AUTHOR	DATE
150	Final Source Area Treatability Study, 2001 Annual Report	CH2	January-03
151	Final 2002 Sediment Quality Monitoring Program, Chena River Aqua Asmt Prog, FWA	CH2M Hill	Apr-03
152	OU5 WQFS CLOSES Evaluation	CH2M Hill	May-03
153	FINAL OU5 Quality Assurance Program Plan	Northwind	Jun-03

## IRP Support Documents

1	Ground Penetrating Radar Studies, FTW Hazardous Materials Site, 30 March - 17 April 1992, Preliminary Report	US Army Cold Regions Research Engineering Lab	May-92
2	Project Report Nike Sites B, C, Yukon Command Training Center	Ecology & Environment	Mar-93
3	Area Wide Community Relations Plans FTW	Ecology & Environment	Apr-93
4	Farmer's Loop Research Area, Site History, Fairbanks North Star Borough, Off-Site	US Army Cold Regions Research Engineering Lab	Jun-93
5	Background Values for Arsenic and Barium at FTW	Alaska District Corps of Engineers	Jun-93
6	Groundwater Monitoring Report for Fort Wainwright- Post-Wide	Alaska District Corps of Engineers	Jun-93
7	Final Work Plan, Phase II Site Investigation, Bldg. #1565	Harding Lawson Assoc.	Aug-93
8	Informational Repository, Administrative Record	CH2M Hill	Sep-93
9	Geological and Geophysical Analyses of Permafrost and Groundwater Conditions	US Army Cold Regions Research Engineering Lab	Oct-93
10	Work Plan, Limited Site Investigation, Farmer's Loop Dump Site, Fairbanks North Star Borough, Off-Site	Dames and Moore	Nov-93
11	Final Summary Report on the 1993 Microwell Field Program at Fort Wainwright and the Farmer's Loop Research Area	US Army Cold Regions Research Engineering Lab	Nov-93
12	Background Data Analysis for Arsenic, Cadmium, Chromium, and Lead on Fort Wainwright	Alaska District Corps of Engineers	Dec-93
13	Technical Specifications, Remedial Action, Yukon Maneuver Area Nike Sites B and C, Yukon Manuver Area	Ecology & Environment	Apr-94
14	Final Phase II Site Investigation, Building 1565,	Harding Lawson Assoc.	Jul-94
15	1993 Summary Report of GW for Ft Wainwright, Post Wide	EMCON/America North	Aug-94
16	Modeling of Groundwater Flow & Contaminant Transport - Summary of Project Activities Relating to the Fuel Terminal Area of OU3 - An Interim Report, Ft. Wainwright and Farmer's Loop Research Station	US Geological Survey and US Army Cold Regions Research Engineering Laboratories	Sep-94
17	Chemical Data Report, Small Arms Range (EOD)	Alaska District Corps of Engineers	Oct-94
18	Farmer's Loop Dump Site	Dames and Moore	Dec-94
19	Stockpile Characterization Report, Appendix D, Parts 1-3, Linder Construction, Inc,	AGRA Earth & Environmental	Jan-95
20	Petroleum, Oil, and Lubricant Status Report	EMCON Alaska	May-95
21	Alaska Thermal Remediation Project Report, 6 Vols.	Environmental Services,	May-95
22	Final Comprehensive Site Investigation, Alaska Field Station	Dames and Moore	Jul-95
23	Final Post-wide Field Sampling Plan, 1996 Addendum	Harding Lawson Assoc.	Dec-96
24	Environmental Restoration News	US Army	Sep-97
25	Revised Area-wide Community Relations Plan	Ecology & Environment	Oct-97
26	Fort Wainwright Restoration Advisory Board Meeting Minutes	Alaska District Corps of Engineers	Mar-98
27	Fort Wainwright Restoration Advisory board Meeting Minutes	Alaska District Corps of Engineers	Jun-98
28	Environmental Restoration News, June 1998, Vol 6, No. 1	US Army	Jun-98

# Previous Studies

	Title	AUTHOR	DATE
29	Natural Attenuation of Chlorinated Hydrocarbon Contaminants.	US Geological Survey	Jul-98
30	Estimate of Aquifer Properties by Numerical Simulation.	US Geological Survey	Jul-98
31	Post-wide Well Evaluation Report.	CH2M Hill	Nov-98
32	Tech Memo: FWA post-wide Well Evaluation Report.	CH2M Hill	Dec-98
33	Final FWA Remediation Air Emissions.	CH2M Hill	Dec-98
34	1998 VOC Emissions, VOC Emissions Tracking Plan, VOC Test Program, NOX & CO Emissions	CH2M Hill	Jun-99
35	Release of HAPs from Treatability Studies Systems 1998.	CH2M Hill	Aug-99
36	Site Investigation, Well 50006	ENSR	Feb-00
37	Air Pollutant Sampling Program, Treatability Study Systems	CH2M Hill	Mar-00
38	VOC Emissions Tracking Program for Treatability Study	ENSR	Mar-00
39	Air Pollutant Sampling Program, Treatability Study Systems, Release of HAPs from Systems, VOC Emissions	ENSR	Jul-00
40	2000 VOC Emissions, Fort Wainwright Remediation Systems	ENSR	Aug-00
41	Five Year Review Report for Fort Wainwright	Wood-Canyon	Sep-00
42	Annual Report, VOC Emissions Tracking Program for IRP	ENSR	Jan-02
43	Final Decommissioning and Removal of 3 Treatment Systems Work Plan dated June 2003, 1168, 1002 & 3483	ENSR	July-03
44	Long-Term Monitoring Plan for FWA Two-Party Sites dated June 2003	ENSR	July-03
45	FINAL Area-wide Community Involvement Plan, January 2003	ENSR	January-03
46	Fort Wainwright Geohydrologic Network Status Report 1998 through 2002	ENSR	June-03

## Ground Water Documents

1	Post-wide Groundwater Monitoring Well Database, update	Northwind	2001
2	Ft. Richardson and Fort Wainwright Monitoring Wells 1985, 1986, and 1987	Env. Science & Eng.	Feb-86
3	Groundwater Monitoring Network	Alaska District Corps of Engineers	Aug-92
4	Groundwater Monitoring Report, FTW, 2 Volumes	Alaska District Corps of Engineers	Jun-93
5	Work Plan and Sampling Plan, Potential Off-site Groundwater Contaminant Migration, West Boundary	Shannon & Wilson	Apr-94
6	Final Groundwater Monitoring April 1994 Sampling Event, Fort Wainwright Picket Wells	EMCON Alaska, Inc.	Aug-94
7	Final Fort Wainwright 1993 Groundwater Summary Report, 2 Vols.	EMCON Alaska, Inc.	Sep-94
8	Contaminant Transport Processes at Fort Wainwright, Alaska, Operable Unit 3, Fuel Terminal Area, Results of Tracer Studies	Water Research Center, University of Alaska	Dec-94
9	Fort Wainwright Drilling, Sampling, Well Installation	Agra, Earth & Environment	Mar-95
10	Final Groundwater Monitoring, October 1994 Sampling Event, Fort Wainwright Picket Wells	EMCON Alaska, Inc.	Mar-95
11	Chemical Data Report, Groundwater Monitoring, 9 Supply Wells	Alaska District Corps of Engineers	May-95
12	Final Fort Wainwright 1994 Groundwater Summary Report	EMCON Alaska, Inc.	Sep-95
13	Groundwater Monitoring, Supply Wells, Summer 1995	Alaska District Corps of Engineers	Nov-95
14	GW Monitoring July 1995 Sampling Event, Picket Wells	EMCON Alaska, Inc.	Feb-96
15	GW Monitoring October 1995 Sampling Event Picket Wells	EMCON Alaska, Inc.	May-96
16	June 1996 Groundwater Monitoring Event, Picket Wells	Hart Crowser	Jun-96

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	Title	AUTHOR	DATE
17	Preliminary Air Emission Evaluation Groundwater Treatment Systems	Hart Crowser	Mar-97
18	1997 Field Season Work Plan Air Emissions Evaluation Picket Well Evaluation	Hart Crowser	Mar-97
19	Final Wellhead Protection Plan, Forts Richardson, Wainwright and Greely	Dowl/Ogden Joint Venture	Jun-97
20	Chemical Quality Assurance Report Wells 6149/6152	Alaska District Corps of Engineers	Jun-97
21	June 1997 GW Sampling Event, Picket Wells and Off-Post	Hart Crowser	Jun-97
22	Memorandum for Final Report, Well 6149/6152	Alaska District Corps of Engineers	Jul-97
23	Estimate of Aquifer Properties by Numerically Simulating Groundwater/Surface Water Interactions	US Geological Services	Aug-98
24	Geologic Investigation of Hydrogeology Part II	CRREL	Oct-98
25	Post-wide Monitoring Well Evaluation	CH2M Hill	Mar-99
26	Geohydrologic Network Status Report, 1998-2000, Tech Memo	ENSR	Apr-01
27			

## Other

1	1999 Sample Results, Bldg 2077, 2 Party	ENSR Consulting and Engineering	2000
2	Sample Results for 1999, Bldgs 2250, 1168 and 1002, 2 Party Sites	ENSR Consulting and Engineering	2000
3	Work Plan Documents Underground Storage Tank Sites	Ecology and Environment	Nov-92
4	U.S. Army Buildings 5001 and 5006 UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jan-93
5	Soil and Groundwater Assessment Additional UST Sites	Ecology and Environment	Jul-93
6	Site Assessment/Corrective Action Plan Former Building 1514 (Site 1) Tanks 221-224	Alaska District Corps of Engineers	Jul-93
7	Site Assessment/Corrective Action Plan Former Building 3481 (Site 4) Tanks 275 & 276	Alaska District Corps of Engineers	Jul-93
8	Site Assessment/Corrective Action Plan Former Building 1546 (Site 2) Tanks 227-233	Alaska District Corps of Engineers	Jul-93
9	Site Assessment/Corrective Action Plan Former Building 3483 (Site 5) Tanks 277 & 278	Alaska District Corps of Engineers	Jul-93
10	Site Assessment/Corrective Action Plan Former Building 4247 (Site 6) Tank 309	Alaska District Corps of Engineers	Jul-93
11	Site Assessment/Corrective Action Plan Former Building 5110 (Site 7) Tank 317	Alaska District Corps of Engineers	Jul-93
12	Corrective Action Plan PX Service Station Underground Storage Tank Site	Ecology and Environment, Inc.	Aug-93
13	U.S. Army Building 3479, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Nov-93
14	Site Release Investigation Report Delivery Order 3	CH2M Hill	Dec-93
15	Site Release Investigation Report Delivery Order 4	CH2M Hill	Dec-93
16	Risk Assessment for Underground Storage Tank Site No. 317	Ecology and Environment, Inc.	Dec-93
17	Building 1060 Treatability Study Plan, Delivery Order 10	CH2M Hill	May-94
18	PX Service Station Treatability Study Plan, Delivery Order 11	CH2M Hill	May-94
19	Site Release Investigation, Delivery Order 2, Building 2111, Vessel Integrity Evaluation	CH2M Hill	May-94
20	Site Release Investigation Report, Delivery Order 2	CH2M Hill	Aug-94

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	Title	AUTHOR	DATE
21	Site Release Investigation Report, Delivery Order 3	CH2M Hill	Aug-94
22	Site Release Investigation Report, Delivery Order 4	CH2M Hill	Aug-94
23	UST Sites Investigation, Delivery Order 9	CH2M Hill	Aug-94
24	Site Release Investigation, Delivery Order 2, Fort Wainwright, Alaska, 2 Vols, Buildings 2111 and 2112	CH2M Hill	Aug-94
25	PX Service Station Treatability Study, Interim Report, Delivery Order 11	CH2M Hill	Sep-94
26	Bldg 1060 Treatability Study, Interim Report, Delivery Order 10	CH2M Hill	Oct-94
27	Corrective Action Plan, Delivery Order 2	CH2M Hill	Oct-94
28	Corrective Action Plan, Delivery Order 3	CH2M Hill	Oct-94
29	Corrective Action Plan, Delivery Order 4	CH2M Hill	Oct-94
30	Draft Site Assessment Report, Removal of Building 2112 with 3 USTs, Associated Piping and Vaults, Remediation of Contaminated Soil, and Removal of Contaminated Soil from Site 4 (Building 3481) 2 Vols.	Shannon & Wilson, Inc	Dec-94
31	Release Investigation Report, Building 3564	Harding Lawson Assoc.	Jan-95
32	Preliminary Release Investigation Report, South Airfield Buildings 2111 and 2112	Harding Lawson Assoc.	Feb-95
33	Supplemental Data, Railroad Offloading Facility, Building 5110	ENSR Consulting and Engineering	May-95
34	Field Report/Site Assessment for Remedial Action, Birch Hill Terminal, 2 Vols.	Environmental Management, Inc.	May-95
35	Final Release Investigation Report, Birch Hill UST Site No. 355, Abandoned Underground Storage Tank Farm	Ecology and Environment, Inc.	Jun-95
36	Groundwater Sampling for Storage Tank Sites, Report of Findings, Delivery Order 16, 2 Vols.	CH2M Hill	Jul-95
37	U.S. Army Building 1191, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
38	U.S. Army Building 2060, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
39	U.S. Army Building 2063, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
40	U.S. Army Building 2092, Golf Course, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
41	U.S. Army Building 4051, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
42	U.S. Army Building 4110A, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
43	U.S. Army Building 4110B, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
44	U.S. Army Building 5003, UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
45	U.S. Army Washrack Site, (FARP), UST Removal, Site Assessment, & Recommendations	Brown & Root Services Corp	Jul-95
46	Final Release Investigation, South Airfield Buildings 2111, 2112	Harding Lawson Assoc.	Sep-95
47	Technical Memorandum for the Monitoring Results from 1546 and 3483, Sites Remediation through October 1995	Harding Lawson Assoc.	Dec-95
48	Draft Release Investigations for Buildings 1002, 1168, 2250	ENSR Consulting and Engineering	Jan-96
49	PX Service Station Treatability Study Annual Report, Year One, (July 1994 to July 1995)	CH2M Hill	Feb-96

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	Title	AUTHOR	DATE
50	Final Report, Release Investigations for Buildings 1002, 1168, and 2250	ENSR Consulting and Engineering	Mar-96
51	Technical Memo, Groundwater Probe Investigations at 1546 and 3483 Sites	Harding Lawson Assoc.	Mar-96
52	Annual Report, 1546 and 3483 Sites Remediation	Harding Lawson Assoc.	Mar-96
53	Technical Memorandum, January and February 1996 Monitoring 1546 and 3483 Sites Remediation	Harding Lawson Assoc.	Mar-96
54	Release Investigation Report Bldg 3015	AGRA Earth &	Mar-96
55	Comment Annotation UST Release Investigation	Alaska District Corps of Engineers	Apr-96
56	Groundwater Sampling for Storage Tank Sites (Bldgs. 1172, 1514, 3425, 3481 and 5110) Report of Findings	CH2M Hill	May-96
57	Annual Report 1546 and 3483 Sites Remediation	Harding Lawson Assoc.	May-96
58	Chemical Quality Assurance Report Bldgs. 1546/3483 (Soils)	Alaska District Corps of Engineers	Jun-96
59	Release Investigation Report/Corrective Action Plan Nike Site C, Battery Control Building Yukon Command Training Center	Ecology and Environment, Inc.	Jun-96
60	Release Investigation Report (Phase 2), Building 3564	CH2M Hill	Jul-96
61	Responses to ADEC Comments on Draft Workplan Addendum for the Release Investigation at Building 2092	CH2M Hill	Sep-96
62	Memorandum Responses to Comments on Building 2092 Release Investigation Workplan	CH2M Hill	Oct-96
63	Final Remedial Action Report Building 2111 Demolition and UST Removal	A Engineering, Science & Tech	Oct-96
64	Work Plan and Health and Safety Plan Addenda Release Investigation Building 2092, Gold Course Clubhouse	CH2M Hill	Oct-96
65	Groundwater Modeling at Building 3564, Delivery Order 5	CH2M Hill	Dec-96
66	Memorandum for Analytical Results, DRMO Excavated Soil	Alaska District Corps of Engineers	Dec-96
67	Technical Memorandum No. 1, April 1996 Sampling Results for Groundwater Sampling for Storage Tank Sites (1171, 1514)	CH2M Hill	Dec-96
68	AST Inventory and Management Report, Forts Richardson, Wainwright and Greely	ENSR Consulting and Engineering	Jan-97
69	Tee 5 Golf Course Well Installation and Sampling	ENSR Consulting and Engineering	Jan-97
70	Tech Memo Evaluation for Intrinsic Remediation at Bldg 2092	CH2M Hill	Jan-97
71	Draft Intrinsic Remediation Treatability Study Report, Building 3564, Delivery Order 5	CH2M Hill	Feb-97
72	Building 1060 Treatability Study, Annual Report Year Two (Oct 1995 to Dec 1996)	CH2M Hill	Mar-97
73	Release Investigation Report Building 2092	CH2M Hill	Mar-97
74	Insert Pages, Project Work Plan for UST Inventory and Management Programs at FTR, FTW, FTG	ENSR Consulting and Engineering	Mar-97
75	PX Service Station Treatability Study Annual Report, Year Two (Oct 1995 to Dec 1996), DO5	CH2M Hill	Apr-97
76	Tech Memo No. 2, Oct 1996, Sampling Results for GW from Storage Tanks (Bldgs 1172, 1514, 3425, 3481, 5110)	CH2M Hill	Apr-97
77	Decommission Report, FTW-125 Decommission of Wells	Alaska District Corps of Engineers	Apr-97
78	UST Release Investigation (Bldgs 1191, 2060, 2062, 2063, 4051, and 4110A)	Harding Lawson Assoc.	May-97



# Previous Studies

	Title	AUTHOR	DATE
79	No Further Action Letter from ADEC, Building 1191, Landfill Equipment Garage	ADEC	May-97
80	Storage Tank Sites (Bldgs 1172, 3481, and 5110) Groundwater Monitoring, July 1997, Sampling Plan Tech Memo	Alaska District Corps of Engineers	Jul-97
81	Sampling Plan Addendum UST Intrinsic Remediation Study	Hart Crowser	Jul-97
82	Technical Memorandum: Groundwater Monitoring, July 1997, Buildings 1172, 3425, 3482, and 5110	Alaska District Corps of Engineers	Jul-97
83	Technical Report 2: Seasonal Midpoint Monitoring Report, 1546 and 3483 Remediation and Monitoring	Harding Lawson Assoc.	Sep-97
84	Technical Report 3: Seasonal Shutdown and Monitoring Report, 1546 and 3483, Remediation and Monitoring	Harding Lawson Assoc.	Oct-97
85	PX Service Station Treatability Study, Annual Report, Year Three (Jan 97-Jan 98)	CH2M Hill	Mar-98
86	Technical Memorandum: Groundwater Monitoring, Building 5010	Alaska District Corps of Engineers	Apr-98
87	Technical Memorandum: Groundwater Monitoring, Building 5010, July 1998	Alaska District Corps of Engineers	Jul-98
88	April 1998 Groundwater Monitoring, Building 5010	Alaska District Corps of Engineers	Jul-98
89	Confirmation Soil and Groundwater Sampling of Bioventing Treatability Study, Sites Bldgs 1002, 1168 and 2250	ENSR Consulting and Engineering	Aug-98
90	Quarterly Monitoring Report, Oct 97-Jun 98, Bldgs 1546 & 3483		Sep-98
91	Groundwater Monitoring Report, Underground Storage Tank Intrinsic Remediation Study, Bldgs 2060, 2062 and 2063	Hart Crowser	Oct-98
92	Bldg 1060 Treatability Study, Annual Report Three (Jan-Dec 97)	CH2M Hill	Oct-98
93	AS/SVE Treatability Study Performance year end Aug 98, Bldg 2077	ENSR Consulting and Engineering	Oct-98
94	Final System Monitoring Report, Bldgs 2111 and 2112	Dowl/Ogden	Nov-98
95	Monitoring Report for June-Dec 98, Bldgs 1546 and 3483	Hart Crowser	Feb-99
96	Bldg 3564, Treatability Study Annual Report, Aug96-Sep 98	CH2M Hill	Feb-99
97	Groundwater Sampling Event, Building 1002	Alaska District Corps of Engineers	Feb-99
98	September 1998 Sampling Event 5010	Alaska District Corps of Engineers	Feb-99
99	Monitoring Report for Jun-Dec 98, Bldgs 1546 & 3483	Hart Crowser	Feb-99
100	Bldg 3564, Treatability Study Annual Report, Aug 96-Sep 98	CH2M Hill	Feb-99
101	Geotechnical Branch, Groundwater Sampling Event, Bldg 1002	Alaska District Corps of Engineers	Feb-99
102	Geotechnical Branch, Sep 98 Sampling Event, Bldg 5010	Alaska District Corps of Engineers	Feb-99
103	Annual Operating Report, Bldg 3564, 2 Party Site	CH2M Hill	Feb-99
104	1998 Treatability Study Report for North Post Site and DRMO	Harding Lawson Assoc.	Mar-99
105	Final 1998 Groundwater Sampling Report, Bldgs 2111/2112	Dowl/Ogden	Mar-99
106	Tech Memo: Groundwater Monitoring, Bldg 5010	Alaska District Corps of Engineers	Apr-99
107	PX Service Station LTM Plan	CH2M Hill	May-99
108	Monitoring Aug 98-Apr 99, North Post & DRMO 2 Party Sites	Hart Crowser	Jun-99
109	Monitoring Report, Dec 98-Apr 99, Bldgs 1546 and 3483	Hart Crowser	Jul-99
110	Tech Memo: PX Service Station Confirmation Groundwater Sampling, Sep-Oct 98	CH2M Hill	Aug-99
111	PX Gas Station Confirmation Groundwater Sampling	CH2M Hill	Dec-99

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	Title	AUTHOR	DATE
112	Groundwater Monitoring, Bldgs 1172/3425/3481/5110	Alaska District Corps of Engineers	Mar-00
113	Final Operations and Maintenance Work Plan, Bldg 1546, 3483, North Post, and DRMO 1&5	Hart Crowser	Mar-00
114	Soil Borings & Groundwater Monitoring Well Logs, Spring 2000 Field Activities, Bldgs. 2062 and OU5	Alaska District Corps of Engineers	Apr-00
115	Bldg 3564 Treatability Study Annual Report, Years 1 & 2	CH2M Hill	May-00
116	March 30, 2000, Groundwater Sampling Results, Bldg 3483 and Apple Road	Hart Crowser	May-00
117	Bldg 2111/2 Raw Data Report	ASCI/NANA	May-00
118	1999 Monitoring Report, NorthPost / DRMO 1 & 5	Hart Crowser	Jun-00
119	Bldg 3564, Long-Term Monitoring Plan	CH2M Hill	Jun-00
120	Final 1999 system Monitoring Report, Treatability Study, Bldg 2111/2112	Dowl/Ogden	Aug-00
121	FWA PX Service Station Confirmational Groundwater Sampling, Bldg 3562	Alaska District Corps of Engineers	Aug-00
122	Revised Bldg 3562, PX Gas Station, Confirmation Groundwater Sampling Tech Memo	Alaska District Corps of Engineers	Aug-00
123	Tech Memo: Bldg 2063 Monitoring Well Installation and Sampling	Alaska District Corps of Engineers	Aug-00
124	Chemical Data Report, Spring 2000 Groundwater Monitoring, Bldgs 2111/2112	Alaska District Corps of Engineers	Sep-00
125	May & Sept 2000 Groundwater Monitoring Results, Bldg 3483	Hart Crowser	Sep-00
126	Final 2000 System Monitoring Report	Dowl/Ogden	Sep-00
127	2000 Status Report and Respiration Testing, Bldg 2077	ENSR Consulting and Engineering	Oct-00
128	Final Work Plan for Decommissioning Remediation Systems at Bldgs 1060 East & 3562, Final Site Safety and Health Plan	ASCI/NANA	Oct-00
129	Remedial Action Report for Decommissioning Remediation Systems at Bldgs 1060 East and 3562	ASCI/NANA	Nov-00
130	Final 2000 Status Report and Respiration Testing, Bldgs 1002, 1168 and 2250	ENSR Consulting and Engineering	Dec-00
131	Raw Analytical Data for Bldgs 2111 and 2112	ASCI/NANA	Dec-00
132	Bldg 3564, Treatability Study, Annual Report Year 3 (7/99-7/00)	CH2M Hill	Jan-01
133	Final Long-Term Monitoring Plan, former Bldg 1168	ENSR	Dec-01
134	Fall 2001 Soil Raw Data Report, Bldg 2111/2	ASCI/NANA	Dec-01
135	Groundwater Program Monitoring Report, Various 2-Party Sites	CH2M Hill	Dec-01
136	Fall 2001 Groundwater Raw Data Report, Bldg 2111/2	ASCI/NANA	Jan-02
137	2001 Status Report and Respiration Testing, Bldgs 1002, former Bldg 1168 and 2250	ENSR Consulting and Engineering	Jan-02
138	Bldg 2077, 2001 Status Report & Respiration Testing	ENSR	Jan-02
139	Final RI Work Plan for Neely Road POL Site	ENSR	Jan-02
140	Tech Memo: Fall 2003 Sampling Data Report, OU3	FES	Jan-03
141	Final 2003 Treatment and Monitoring Operations Work Plan, OU2 dated August 2003	North Wind	Aug-03
142	Final Groundwater Monitoring and Data Analysis at the Landfill Source Area Work Plan, OU4	North Wind	Aug-03
143	Final Groundwater Monitoring and Data Analysis at the Coal Storage Yard Source Area Work Plan, OU4	North Wind	Aug-03
144	Draft 2003 Annual Groundwater Monitoring, 801 Drum Burial Site	ENSR	Aug-03
145	Draft Bldg 2077 Contaminated Soil Removal Work Plan	Swaim	Sep-03

## Previous Studies

	Title	AUTHOR	DATE
146	Draft Bldg 2077 Contaminated Soil Removal Site Specific Safety and Health Plan	Swaim	Sep-03
147	Draft Bldg 2077 Contaminated Soil Removal Environmental Protection Plan	Swaim	Sep-03
148	Draft Bldg 2077 Contaminated Soil Removal Sampling and Analysis Plan Ammendment	Swaim	Sep-03
149	Draft Decommissioning Monitoring Wells at FWA and FRA Work Plan	Shannon & Wilson	Sep-03
150	Draft OU5 Annual Report, March 2002-February 2003	North Wind	Sep-03
151	Final Work Plan Addendum for Decommissioning of the Bldg 1168 (3Party) Site	ENSR	Sep-03
152	Fort Wainwright Groundwater Monitoring Program 2003 Report	CH2M Hill	Oct-03
153	Technical Memorandum, North Post Site Review	CH2M Hill	Oct-03
154	Final Management Plan, Decommissioning Monitoring Wells FWA, FRA	Shannon & Wilson	Oct-03
155	Final 2002 Annual Report, Operable Unit 2	North Wind	Oct-03
156	Draft 2004 Treatment and Monitoring Operations Work Plan OU2	North Wind	Oct-03
157	Building 2077 Contaminated Soil Removal Work Plan	Swaim	Oct-03
158	Building 2077 Contaminated Soil Removal Preliminary Lab Analysis Backfill Material Report	Swaim	Oct-03
159	Building 2077 Contaminated Soil Removal Environmental Protection Plan	Swaim	Oct-03
160	Building 2077 Contaminated Soil Removal Site Safety and Health Plan	Swaim	Oct-03
161	Draft System Decommissioning at Bldgs 1168, 1002, and 3483	ENSR	Oct-03
162	Draft CLOSES Evaluation, DRMO Yard	CH2M Hill	Nov-03
163	Sampling Data Report Fall 2003, OU4 Coal Storage Yard	North Wind	Nov-03
164	Sampling Data Report Fall 2003, Landfill	North Wind	Nov-03
165	Investigative-Derived Waste Report for the OU4 Landfill, September 2003 GW event	North Wind	Nov-03
166	Investigative-Derived Waste Report for the OU4 CSY Sept-Oct 2003 Well Decom and GW event	North Wind	Nov-03
167	Neely Road POL Site Release Investigation Final Report	ENSR	Dec-03
168	Draft Tech Memo - Results of Indoor Air Monitoring at Building 1060	North Wind	Dec-03
169	Sampling Data Report for Bldgs 2111/2112 Site GW Monitoring and Soil Borings	ENSR	Dec-03
170	Draft Work Plan Addendum, Bldgs 1002, 1168, 2250, 2077 and Neely Road	ENSR	Dec-03
171	Draft Investigation of Fuel Contamination at Neely Road and Bldg 2250 LIF	COE	Dec-03
172	Well Decommissioning Letter Report for CSY, OU4	North Wind	Dec-03
173	Well Repair Letter Report for Landfill, OU4	North Wind	Dec-03
174	Draft CSY Remediation System Decommissioning Work Plan, OU4	North Wind	Dec-03
175	CDQR Fall 2003 GW Monitoring at the Landfill, OU4	COE	Dec-03
176	CDQR Fall 2003 GW Monitoring at the CSY, OU4	COE	Dec-03
177	Draft Tech Memo: DRMO Yard GW Trichloroethene/Tetrachloroethene Concentration Trend Analysis	North Wind	Dec-03
178	Final Tech Memo - Flow Meter Replacement DRMO 3-Party AS/SVE Treatment System	North Wind	Dec-03



## Previous Studies

	Title	AUTHOR	DATE
179	Replacement Cover - 2002 Status Report for Blgs 1002, 1168, and 2250	ENSR	Jan-04
180	Revised Draft 2003 Annual GW Monitoring Report 801 Drum Burial Site	ENSR	Jan-04
181	Draft 2004 OU3 Work Plan	FES	Jan-04
182	Draft CLOSES Evaluation, 801 Drum Burial Site FWA	CH2M Hill	Jan-04
183	Final CLOSES Evaluation Bldg 1168 Site, FWA	CH2M Hill	Jan-04
184	Annual Report: VOC Emission Tracking Program for 2003 IRP Treatment Systems FWA	ENSR	Jan-04
185	2003 Operation, Maintenance and Monitoring Report Bldgs 1002, 1168, 2250 and 2077 FWA	ENSR	Jan-04
186	CD ONLY: 2003 Fall Groundwater Sampling Event, EDF corrected files dated	FES	Jan-04
187	Draft 2003 Landfill Annual Report, OU4, FWA	North Wind	Feb-04
188	Draft 2003 Operation, Maintenance and Monitoring Report for Buildings 2111/2112, FWA	ENSR	Feb-04
189	Draft 2003 Coal Storage Yard Annual Report, OU4, FWA	North Wind	Feb-04
190	Tech Memo: Documentation of OU3 FEFLOW Model, FWA	CH2M Hill	Feb-04
191	Horizontal Well Remediation System AS Probe Monitoring Report, OU5 FWA	North Wind	Feb-04
192	Draft 2003 OU2 Annual Monitoring Report, FWA	North Wind	Mar-04
193	Final 2004 Work Plan OU3, FWA	FES	Mar-04
194	Draft Removal Action Report Building 2077 Contaminated Soil Removal FWA	Coe-Swaim-FES	Mar-04
195	Draft Remedial Action Report for POL Source Removal FWA	BNCI	Mar-04
196	Final 2004 Treatment and Monitoring Operations Work Plan	North Wind	Mar-04
197	Draft Investigative-Derived Waste Management Area 2003 Annual Report	North Wind	Mar-04
198	Final Technical Memorandum Results of Indoor Air Monitoring at Building 1060	North Wind	Mar-04
199	Final CLOSES Evaluation DRMO Yard, FWA	CH2M Hill	Mar-04
200	Draft CD CLOSES Evaluation Building 2250 FWA	CH2M Hill	Mar-04
201	Draft CD CLOSES Evaluation North Post FWA	CH2M Hill	Mar-04
202	Final 2003 OU3 Annual Monitoring Report	FES	Mar-04
203	Final CLOSES Evaluation 801 Drum Site, FWA	CH2M Hill	Apr-04
204	Draft 2004 Work Plan for POL Source Removal, FWA	COE- BNCI	Apr-04
205	Final Report Treat System Decom Bldgs 1168, 1002, and 3483	COE-ENSR	Apr-04
206	Sampling Data Report for Bldgs 2111/2112 Site GW Monitoring	COE-ENSR	Apr-04
207	Draft Remedial Action Report for POL Source Removal	COE-BNCI	Apr-04
208	Final Coal Storage Yard Remediation System Decommissioning Work Plan	COE-North Wind	Apr-04
209	Final 2003 OM&M Report for Bldgs 2111/2112	COE-ENSR	May-04
210	Draft Bldg 2062 and Former Bldg 2063 Site Closure Plan	COE-Hart Crowser	May-04
211	EDMS Deliverable for Spring 2004 Bldgs 2111/2112	COE	Jun-04
212	Final CLOSES Evaluation MP 3.0	CH2M Hill	Jun-04
213	Final CLOSES Evaluation MP 2.7	CH2M Hill	Jun-04
214	Final CLOSES Evaluation North Post Site	CH2M Hill	Jun-04
215	Birch Hill UST Site Draft Remedial Investigation	Ecology and Environment	
216	Tech Memo: Groundwater Monitoring, Bldgs 1172, 3425, 3481, 5110	Alaska District Corps of Engineers	
217	Final, Status Report and Respiration Testing, Bldg 2077	ENSR	

## Previous Studies

	Title	AUTHOR	DATE
218	Final, Status Report and Respiration Testing, Bldgs 1002, 1168 and 2250	ENSR	
219	Technical Memorandum, Summer 2003 Sampling Data Report, OU3	FES	
220	2003 Fall Groundwater Sampling Event OU3 EDF files, EDMS files	FES	
221	Tech Memo: Sampling Data Report OU3 2004 Winter Groundwater Sampling Event	FES	
222	Tech Memo: Sampling Data Report OU3 2004 Winter Groundwater Sampling Event EDF and Draft EDMS	FES	
223	Final 2003 Annual Groundwater Monitoring, 801 Drum Burial Site	COE-ENSR	
224	Final LIF Investigation Neely Road and Bldg 2250	COE	
225	Sampling Data Report, OU3 Spring Sampling Event 2004	COE-FES	
226	EDF and draft EDMS deliverables: Sampling Data Report, OU3 Spring Sampling Event 2004	COE-FES	
227	Draft CLOSES Report Bldg 5110	CH2M Hill	
228	Draft 2004 Landfill Work Plan, SAP, QAPP, HSP	FES	
229	Draft 2004 Work Plan for Treatment/Monitoring Activities Bldgs 1002, 1168, 2250, 2077 and Neely Road	COE - ENSR	
230	Draft 2004 Work Plan Addendum OM&M for Bldgs 2111/2112	COE-ENSR	
231	Draft Bldg 2060 Closure Plan dated May 2004	COE-Hart Crowser	

### TWO PARTY SITE DOCUMENTS

1	Tech Memo: 2002 Report for Bldg 2077 Add'l Sampling	ENSR	Dec-02
2	Bldg 2077, Contaminated Soil Removal, Comments & Work Plan	Swaim/FES	Aug-02
3	TCLP Preliminary Results, Bldg 2077	ENSR	May-02
4	FINAL Operations, Maintenance & Monitoring Work Plan for 2077, Bldg 2077, et al	ENSR	Jun-03
5	Tech Memo: Installation of Monitoring Wells at the North Post Site, FWA	CH2M Hill	Jun-03
6	FWA Groundwater Sampling Program 2002 Report	CH2M Hill	Nov-02
7	Bldg 2111/2112 Raw Data Report	ASCI/NANA	Aug-02
8	Bldgs 2111/2 Operations, Maintenance & Monitoring 2003 Work Plan	ENSR	May-03
9	Operations, Maintenance & Monitoring Manual: Bldgs 2111/1 Treatment Systems	ENSR	May-03
10	Proposed Spring 2002 soil boring locations 2111/2112, FWA	ASCI/NANA	May-03
11	FINAL Monitoring Report, 2002 Treatment System, Bldgs 2111/2 FWA	ENSR	Jun-03
12	FINAL Long-Term Monitoring Plan, Bldg 1002, et. Al.	ENSR	Jun-03
13	Tech Memo - Groundwater Well Installations, Bldg 1002	ENSR	Dec-02
14	Final RI Work Plan for Neely Road POL site fwa Feb 2002	ENSR	Mar-02

# **Fort Wainwright**

**ER,A ACTIVE SITES**

# FTWW-003 AIRCRAFT MAIN (BUILDING 2077)

## SITE DESCRIPTION

FTWW-003 (Bldg 2077, part of OU1) is located near the southeast corner of the flight line on Montgomery Road. The building consisted of paint stripping and painting operations. This site was included in the OU1s RI/FS Management Plan and indicated BTEX, DRO, heavy metals, and PAH contaminants were present in soil and groundwater. The source area was transferred to the Two-Party Agreement for action, based on the results of the RI/FS.

Approximately 1 acre was treated for groundwater contamination; a SVE/AS system was installed in August 1997. The SVE/AS system was disconnected in 2002. Because contamination levels of DRO in the groundwater still had not decreased significantly, a soil removal (~400 cy) was conducted in 2003. Post excavation results indicated that operation of the system is no longer required.

The SVE system will be removed in FY04.

## STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

DRO

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, RD, RA, RA(O)

**CURRENT IRP PHASE:**

LTM

**FUTURE IRP PHASE:**

LTM

## PROPOSED PLAN

Develop a long-term monitoring plan/exit strategy for frequency of monitoring.

# FTWW-038 FT. WAINWRIGHT LANDFILL PLUME

## SITE DESCRIPTION

The landfill is part of OU4. The source area (inactive portion) covers approximately 14 acres, and the area is located below Fort Wainwright's active landfill, located north of River Road. Gravel excavation began in the landfill as early as 1944. Landfill operations reportedly began in the 1950s; however, there are no historical records documenting the starting date of landfill operations. Unsegregated waste was disposed in the gravel pits and then burned. After the pits were filled with burned debris, they were covered.

The RI was completed in 1994. Sampling results indicated unacceptable levels of VOCs, SVOC and metals in the groundwater. Discharge to the Chena River and transport to downgradient wells were issues of concern.

The chosen alternative in the ROD (Sept 1996) was a phased approach. The first phase included capping the inactive portion of the landfill, which was completed in September 1997. The alternative also included natural attenuation, monitoring of groundwater, and institutional controls. The second phase would include evaluation of potential groundwater treatment, if contaminant levels increase (which has not been shown to date). Annual inspections of the landfill cap's integrity have taken place; the entire site has been fenced and it appears that no threat to the cap's integrity exists. The groundwater contamination is localized and is not migrating.

## STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

Solvents

**MEDIA OF CONCERN:**

Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, RD, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O)

## PROPOSED PLAN

Long-term monitoring (for natural attenuation) and cap inspections will continue. Institutional controls will remain in place.

# FTWW-047 DRMO SALVAGE YARD

## SITE DESCRIPTION

FTWW-047 is made up of 6 sub-areas. Three sub-areas with petroleum and solvent contamination are part of OU2; two other petroleum-contaminated areas were previously addressed in FTWW-091. However, because it appears that the plumes have commingled and can best be treated as one area, FTWW-091 will be merged into this site and closed. All remedial work at the DRMO Salvage Yard will be addressed under this AEDB-R site, FTWW-047.

Contaminants found on this site were solvents and petroleum in the soil and groundwater. The site is located along Badger Road, northwest of the intersection of Badger Road and the Old Richardson Highway, on the eastern boundary of Fort Wainwright. The salvage yard is a fenced compound covering approximately 25 acres. Spills occurred routinely at this source area. There is a potable water well within the solvent plume. The water is treated prior to use.

The RI/FS was completed in October 1994. The OU2 ROD was signed in April 1997, with the chosen alternative being air sparging/soil vapor extraction. The OU2 system was installed during the summer of 1997. The OU2 system continues to operate and showed decreasing trends within a limited area. The DEMO system treatment area has comingled with the 3P site area and was shut down. The DRMO5 area no longer requires active treatment.

In FY03, PCE above action levels was discovered at DRMO4. However, a CLOSES evaluation was completed in Jan 2004 and concluded that the current systems at OU2 and the DRMO were not effective in reaching the total area of contamination.

## PROPOSED PLAN

The air sparging and soil vapor extraction at OU2 will continue to operate. A soil gas survey will delineate the extent of contamination and if active treatment is required, at OU4 and is expected to be completed in FY04. Long-term monitoring will continue at DRMO5.

## STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

TCE, PCE, POL

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, RD, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O), LTM

SITE DESCRIPTION

The North Post Site was originally part of OU2. The RI indicated that POL was the only chemical present, so the site became part of the Two Party Agreement.

The site consists of contamination from USTs that supported a test center. It is located on a meander (oxbow) of the Chena River and it is approximately 10 acres, adjacent to family housing. Contamination investigations were initiated in September 1985, and an initial removal action at FTWW-050 for POL soils was completed in the summer of 1993. The remedial investigation was completed in October 1994. Removal of polyaromatic hydrocarbons (PAH) from surface soils was completed in fall of 1996. An air sparging/soil vapor extraction system was installed to treat the POL-contaminated soil and groundwater adjacent to the Chena River to the north and west, and a family housing area to the immediate east. System was modified to enhance vapor extraction, and was shut off in November 2000 when it appeared action levels had been achieved. A review of the 2001 data indicated that sampling could be reduced to an annual event and the system could remain off. However, upon review of the 2002 sampling results, it was discovered that contamination had increased, and evidence of free product, previously undetected, was found in one well.

A site visit early in 2003 revealed a new geological feature: a trench had formed on the site in an area not previously treated. New wells were installed in June 2003, and were sampled in August, along with the remaining four existing wells. A historical document search was completed in FY04 to consolidate all of the old data. A CLOSES evaluation was completed in June 2004. The new wells reveled no new information or findings and the historical research found no documentation of a trench.

STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**  
Benzene, POL Components

**MEDIA OF CONCERN:**  
Soil, Groundwater

**COMPLETED IRP PHASE:**  
PA/SI, RI/FS, IRA, RD, RA, RA(O)

**CURRENT IRP PHASE:**  
LTM

**FUTURE IRP PHASE:**  
LTM

PROPOSED PLAN

Continue long-term monitoring.

# FTWW-055 FAIRBANKS FUEL TERMINAL

## SITE DESCRIPTION

The Fairbanks Fuel Terminal is part of OU3. This site is the most complex site on Ft Wainwright, because of its geology, the relatively large size of the estimated release, and off-site impacts. (A tort claim has been filed against the Army for alleged damages.) This site covers ~250 acres in the northwest corner of Ft Wainwright.

The original RI and ROD (1996) focused on the base of Birch Hill and the contaminants of benzene, ethylene dibromide (EDB), 1, 2-dichloroethane (1, 2 DCA) that exceeded federal drinking water standards. The ROD required SVE and air sparging.

Subsequent activities indicated a substantial increase in the aerial extent of contamination at the site, to include free product in fractured bedrock on Birch Hill. Results of FY98 field season sampling events determined that large amounts of contamination from EDB and 1,2 DCA are located on Birch Hill. These contaminants are a continuing factor in contaminating the lower hillside. Further investigation during 1999-00 indicated that there is off-post migration from the Tank Farm.

Bottled water has been provided to bordering churches since 1995; contamination below action levels still remains in one well which is monitored semi-annually.

An air-sparging curtain was installed in 1999 and expanded in 2000 along the fence line to treat groundwater before it migrated off-post. A product recovery system was installed on Birch Hill in 2000 and was modified in 2001 to capture product prior to moving down hill and subsequently off-post. An ESD was completed in Sept 2002, to include product recovery implementation, additional investigation and modeling.

In 2003, additional geophysical investigations and tracer studies occurred and additional wells were installed. A site model is being developed. Geophysical investigations in FY04, indicated that a data gap is present and investigation is needed to determine the eastward flow in the bedrock. (Large uncertainties remain regarding potential migration pathways within the fractured bedrock.)

The cleanup goals for the Truck Fill Stand and contamination from Bldg 1173 (subsites within Birch Hill), have been achieved.

*NOTE: The ASTs within the Fairbanks Fuel Terminal boundaries have been split out into a separate AEDB-R Number, FTWW-096, and is part of OU5. The Tank Farm dates back to 1943.*

## STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

Benzene, Free Product, Solvents, EDB; 1,2 DCA

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, RD, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O), LTM

## PROPOSED PLAN

Complete the site models (evaluate fate and transport of contaminant within permafrost and fractured bedrock). Continue operation and maintenance of soil vapor extraction, air sparging, and recovery systems. Long-term monitoring and quarterly evaluation of site status will continue.



# FTWW-067

## 801 DRUM BURIAL SITE

### SITE DESCRIPTION

FTWW-067 is part of OU1. The site is located between the west bank of the Chena River and Fegree Road and south of the Alaska railroad bridge. The site consists of approximately 20 acres. The site was discovered during the initial excavations for the 801 contract housing construction project. In 1987, a large quantity of drums was removed from the construction area during initial construction. Another large drum removal was undertaken in 1992, during the construction of a storm drain from the housing area to the Chena River. Overall, over 200 drums were found, roughly half of which contained product. Sampling results show high levels of POL, pesticides and solvents in soil and groundwater. Additional drums were found and removed during the summer 1995 remedial investigation, and the follow-up 1996 investigation.

A ROD was signed in June, 1997, which recommended further removal action (if additional drums were found), monitoring for POL, pesticides and solvents, institutional controls, and natural attenuation for groundwater. Additional geophysical surveys were conducted in 1997. No additional drums were found.

Monitoring wells to determine potential contamination migration to the Chena River were installed; sampling is conducted on a yearly basis; every third year, comprehensive sampling is conducted. In the other two years, the number of wells and analytes is reduced.

IDW soils (850 cy) were remediated using phytoremediation versus shipping pesticide-contaminated soils off-post (ended in 2003). The soil was disposed of in the landfill.

Land use controls are in place that restrict groundwater use and digging in the area.

A CLOSES evaluation was completed in March 2004, that concluded that groundwater monitoring should continue every five years. The plume is considered stable, however, the contamination is still above cleanup levels.

### STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

Aldrin, Dieldrin

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 4 IRAs, RD, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O)

### PROPOSED PLAN

Groundwater monitoring will continue.

FTWW-072

# OIL WATER SEPARATOR AT BLDG 1168

## SITE DESCRIPTION

FTWW-072 is part of OU2. The building was constructed in 1950 as a lubricant oil and vehicle storage facility and was converted to a POL laboratory around 1962. It was located near the western boundary of Fort Wainwright, adjacent to Trainor Gate Road. The building was demolished in 1998.

The contamination covers an area of approximately 50 feet from the leach well. The primary source of contamination was from a former leach well connected to an oil/water separator system. Contaminants found initially at this site included POL, solvents and heavy metals. Treating this source was especially critical because the site is located within 500 feet of the post boundary and within 1,000 ft of a public school.

Remedial action was undertaken for in situ treatment of contamination. The installation of an air sparge/soil vapor extraction system was completed in November 1994. The system was turned off in 1998, monitored for rebound, and none occurred. The system was decommissioned in 2003.

A CLOSES evalution was completed in FY04. The site was monitored in FY04; the results will determine the future monitoring requirements, if any.

The surrounding area is being considered for family housing to support the SBCT.

## STATUS

**RRSE RATING:** Low  
**CONTAMINANTS OF CONCERN:**  
DRO  
**MEDIA OF CONCERN:**  
Soil, Groundwater  
**COMPLETED IRP PHASE:**  
PA/SI, RI/FS, IRA, RD, RA, RA(O)  
**CURRENT IRP PHASE:**  
LTM  
**FUTURE IRP PHASE:**  
RC

## PROPOSED PLAN

Groundwater monitoring requirements and site closure will be negotiated.

# FTWW-083 RAILROAD OFF-LOADING FACILITY

## SITE DESCRIPTION

FTWW-083 is part of OU3. The site is located south of the Tank Farm Facility across the Chena River and north of Gaffney Road. Pipes connect the Fairbanks Fuel Terminal (FTWW-055) and the Railcar Off-Loading Facility (ROLF). The facility covers an area of ~40 acres. The facility dates back to 1939. The areas (6 subsites) associated with this source area include the off-loading headers and associated USTs, six valve pits and underground pipelines. Approximately 7 inches of floating product was measured in numerous monitoring wells during the summer of 1996. The findings indicate subsurface contamination exists in hot spots throughout the area especially along the pipeline system.

Petroleum contamination was found in subsurface soils and groundwater surrounding Valve Pits A, B & C, along Front Street, and surface and subsurface soils and groundwater in the center of the site.

The chosen remedial alternative in the ROD, signed in April 1996, was limited treatment in areas where highest levels of contamination exist. Five SVE/AS systems were installed during the summer of 1996, and one system in 1998. These initial treatability studies indicated a larger area of contamination than originally defined. Expansion of the systems was determined necessary. An ESD was completed in Sept 2002 to address the greater extent of treatment required and the associated increase in costs. Institutional controls are in place at this site.

As of 2003, three of the subsites have achieved remediation goals and are undergoing rebound assessments. The SVE/AS systems are still running at the other three subsites.

In FY04, the systems in certain zones were shut off because the cleanup goals were met. The systems were expanded into other zones to treat newly found hot spots.

## STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 2 IRAs, RD, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O), LTM

## PROPOSED PLAN

Continued system operation, long-term monitoring. A LTM Plan and site specific exit strategy will be developed and incorporated into the annual comprehensive monitoring reports.

# FTWW-084 FAIRBANKS EIELSON PIPELINE SPILLS

## SITE DESCRIPTION

FTWW-084 is part of OU3. The source areas at Pipeline Mileposts 2.7 and 3.0 are located at the base of the abandoned Birch Hill USTs, east of the Tank Farm Facility, on the eastern side of Birch Hill. Previous operations at an abandoned truck fill stand might have affected the quality of the soil and groundwater in this area. Petroleum-related contamination was detected at various locations to a depth of 15 ft bgs.

The source area at Pipeline Milepost 15.75 (the intersection of Laurance Road and Robyn Drive) was caused by a spill that occurred in August 1989, when a portion of the Fairbanks-Eielson Pipeline was ruptured during road construction. A SVE/AS system was installed, and has remediated this site. This system was removed and utilized at FTWW-055. Long-term monitoring continues at milepost 15.75.

The mileposts 2.7 and 3.0 RI was completed in 1996. Benzene and petroleum were detected well above cleanup levels in soil and groundwater. A treatability study, which included SVE/AS and oxygen releasing compounds, was not effective due to nature of the soils (permafrost, tight claylike soil) in the area. A new treatability study was completed to determine the effectiveness of aboveground SVE/AS with soils removed from the mileposts. This treatment was highly effective, and soils at the mileposts have been removed for ex situ treatment and disposal. In situ long-term monitoring continues at the actual milepost sites. Levels show no indication of decrease, with the exception of wells in the excavated zone.

An ESD was completed in Sept 2002, to document the changes in treatment and associated increased costs. Additional wells were installed to characterize the extent of contamination. As of 2003, groundwater monitoring will continue. No active remediation is planned, assuming the site conditions remain stable.

The CLOSES evaluation was completed in June 2004, it recommended continued groundwater monitoring (every 5 years) and wetlands survey.

## STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 2 IRAs, RD, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O)

## PROPOSED PLAN

Additional wells are being installed and monitored in 2004. Continue long-term monitoring and complete a wetlands survey.

### SITE DESCRIPTION

One underground storage tank (# 317) was located near Bldg 5110, the former Range Control Building, south of the Richardson Highway. The UST has been removed. Fuel was delivered to an apparently disconnected fill pipe several times over a two to three year period. Potentially contaminated soil was removed and free product was observed in the groundwater encountered in the bottom of the excavation. Further investigations indicated that discontinuous permafrost had substantially reduced the ability of the COCs to migrate. Product recovery was attempted in 1994 with limited success.

Monitoring of picket wells, installed between the source and the post boundary, was conducted. Picket wells are no longer sampled annually since they have been “non detect” since their installation. Although levels remain above action level, no receptors or migration have been identified. The site has been monitored annually, except for 2002 due to contractual issues.

The site was sampled again in August 2003. The plume appears stable. A CLOSES evaluation was completed in FY04.

### STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

DRO, BTEX

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 3 IRAs, RD, RA, RA(O)

**CURRENT IRP PHASE:**

LTM

**FUTURE IRP PHASE:**

LTM

### PROPOSED PLAN

Negotiate to reduce frequency and parameters of monitoring events.

# FTWW-087

## UST, BLDG 2111 & 2112

### SITE DESCRIPTION

This site consisted of seven underground storage tanks (50,000 gallon) and two aircraft refueling systems located at Buildings 2111 and 2112 next to taxiway 17. During the summer of 1996, Buildings 2111 and 2112 were demolished, and the leaking USTs along with associated piping were removed. An air sparging system was installed to address high levels of benzene contamination in groundwater.

In 2003, negotiations with ADEC resulted in agreement to focus on those hot spots, and turning treatment off in areas where levels are below action numbers. In addition, air sparging wells were refurbished to increase air flow.

### STATUS

**RRSE RATING:** Medium

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 3 IRAs, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O), LTM

### PROPOSED PLAN

Continue operation of air sparging treatment system in designated hot spots for both buildings. Evaluate effects of the air sparge wells refurbishing. A long-term monitoring plan will be developed once the system operation has been fully evaluated, CLOSES evaluation completed, and decreases in parameters and frequency of monitoring have been negotiated.



## FORMER QUARtermasters FUELING SYSTEM EAST/WEST

## SITE DESCRIPTION

## WQFS:

The west section of the former Quartermaster's fueling system (WQFS) is located between Front Street and Gaffney Road. A benzene plume covered approximately 50 acres. The area runs from northern boundary of the taxiway to the Chena River. Initial groundwater samples collected indicated presence of diesel range organics, gasoline range organics, solvent (TCE), and benzene contamination. Investigations in 1994 identified several plumes (fuels and TCE) in the groundwater. A remedial investigation (RI) was completed in 1995.

The WQFS is divided into four areas:

- WQFS1 is just north of the taxiway and south of Gaffney Road
- WQFS2 is north of Gaffney Road and border the Chena River to the north
- WQFS3 is west of the WQFS2 and also borders the Chena River and Gaffney Road
- WQFS4, is east of WQFS1, which was designated no further action under CERCLA and which will not be discussed further in this plan.

At the WQFS2/3, a treatability study using oxygen-releasing compounds was operated from 1996 to 1998, with limited success. An additional treatability study in WQFS1, using radio frequency and six-phase soil heating to enhance biodegradation and volatilization, was completed with mixed success. The decision was made that it would not be cost-effective for treatment of a greater area. In 1997, a 600 ft horizontal air sparging and soil vapor extraction treatability study began in WQFS1 area. A metal retaining structure, originally installed to prevent fuel from flowing to the river, was replaced by an air-sparging curtain in 1998 for the WQFS2 area.

Chosen alternatives in the ROD, signed in April 1999, at the WQFS include soil vapor extraction/air sparging, potential in situ soil heating in hot spots, potential operation of a downgradient air sparging trench, groundwater monitoring, monitored natural attenuation, and long-term monitoring. The treatability studies that were implemented as final remedial actions were the air-sparging curtain in WQFS2, and AS/SVE in other areas of the WQFS.

Bench scale tracer and biodegradation studies were conducted to better understand the persistence of the contamination. Groundwater modeling was conducted to better determine groundwater movement and contaminant transport and remedial action effects on the Chena River.

Post-ROD active remediation at the WQFS included the horizontal well air sparging/soil vapor extraction system (WQFS1); source area AS/SVE (WQFS1); and an air sparging/SVE curtain to protect the Chena River (WQFS2). Augmentation of these existing air sparging/SVE systems was completed in 2001 to better protect the River and attack the hot spots. This included expansion of the WQFS2 air sparging curtain to reach a hot spot in WQFS3.

A preliminary CLOSES evaluation was conducted on the overall WQFS site in 2002. This report recommended shutting down the WQFS 1 horizontal well system due to on-going silting problems; shutting down SVE in the WQFS1 and WQFS2 areas (including discontinuation of treatment into the WQFS3); and removal of the thermal oxidizers at the horizontal well system and the air-sparging curtain. The report also recommended reducing groundwater monitoring wells from 39 to 23 on an annual basis.

A number of the AS/SVE wells were refurbished during the summer of 2003. The recommendations in the CLOSES report were fully implemented in 2004.

## STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

POL, Benzene, 1,2DCA, EDB

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 2 IRAs, RD, RA

**CURRENT IRP PHASE:**

RA(O)

**FUTURE IRP PHASE:**

RA(O), LTM

**FORMER QUARtermasters FUELING SYSTEM EAST/WEST****EQFS:**

The east section of the former Quartermaster's fueling system (EQFS) is located between Front Street and Gaffney Road. A benzene and TCE plume covered approximately 40 acres that may have previously traveled under the Chena River. During a UST release investigation, gasoline and diesel groundwater contamination were encountered. Monitoring wells and microwells were installed surrounding this plume, and in 1989 and 1992, the results showed both petroleum and solvent contamination in the soil and groundwater. In 1994, a comprehensive evaluation of the east QFS was conducted, which included installing groundwater probes, soil borings, and monitoring wells. The groundwater data identified several small plumes (fuels and solvents), and the soil data confirmed solvent contamination. The remedial investigation was completed in 1996.

An air-sparging/soil vapor extraction system treatability study was installed at East Building 1060. Chosen alternatives for remedial action in the OU5 ROD at the EQFS included continued operation of the soil vapor extraction/air sparging system at east Bldg 1060 as a remedial action, groundwater monitoring, and monitored natural attenuation. The east 1060 system remediated the hot spot to below-action levels, and was refurbished and relocated to the west side of Building 1060 in 2000 to address solvent contamination in that area. An electric oxidizer has been installed at this site for off-gas vapor treatment.

Due to the decrease in contamination at the West Bldg 1060 site, it has been recommended that the oxidizer be shut off. After indoor air sampling at Bldg 1060, the oxidizer was shut off in FY04. Operation of the AS/SVE system will take continue, as well as annual monitoring.

The plumes that had been addressed through monitored natural attenuation have degraded to the point where agreement has been reached to monitor most of the areas on an every five year basis, the year prior to the next five year review. The next full suite of sampling will therefore, take place in FY05.

**OU5 Site-Wide:**

Ecological impacts on the Chena River due to Army activities were addressed in the OU5/Post-Wide Risk Assessment. At that time, it was recommended that a sediment monitoring program be initiated to help determine what impact Army activities may have had on river life. The Chena River Aquatic Assessment Program (CRAAP) was developed, and included in the OU5 ROD. The program addressed monitoring changes to the river now that the remedial actions are in place. There have been two sampling events under this program, the latest completed in 2002. Results of this assessment remained largely inconclusive regarding invertebrate life in the river. It was agreed that further sampling would be reviewed in FY05 so that any determination about further sampling could be incorporated into the next Ft Wainwright five-year review.

**PROPOSED PLAN**

Continue evaluation of requirements for operations and monitoring upon evaluation of post well rehabilitation sampling results. Continue to evaluate site-wide exit strategy. Negotiate reductions in sampling frequencies and parameters as results indicate.

### SITE DESCRIPTION

One 500-gallon underground storage tank (UST # 202) was located near the Utility Lift Station, Building 1002. During its removal, approximately 50 cy of contaminated soil was removed at a depth of approximately 17 ft, at which point contaminated groundwater was encountered.

An air sparging/soil vapor extraction system was installed at this site. Downward trends in contaminant levels have continued at this site, but one persistent benzene hot spot remains. It was determined that the treatment system was not affecting results, and the system was turned off in 2001 and decommissioned in 2003. The same well remains at levels above action (benzene at 38 ppb in groundwater at the last sampling event).

In FY04, a downgradient well was installed, near the ball field, and no contamination was detected.

### STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

Benzene

**MEDIA OF CONCERN:**

Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, IRA, RD, RA, RA(O)

**CURRENT IRP PHASE:**

LTM

**FUTURE IRP PHASE:**

LTM

### PROPOSED PLAN

Frequency of monitoring will be negotiated. Most likelt sampling will be taken every other year to evaluate the benzene contamination.

# FTWW-096 BIRCH HILL ASTs

## SITE DESCRIPTION

This site was split out from the Fairbanks Fuel Terminal (FTWW-055) and is part of OU5 and the Two-Party Agreement. Commingled lead and POL contamination were deferred from OU3 to OU5. FTWW-096 addresses only the lead-contaminated soils surrounding the ASTs; POL-contaminated soils will be addressed under the Two-Party Agreement when the tanks are removed.

The aboveground storage tanks are located on Birch Hill in the north-west corner of Fort Wainwright. The site covers approximately 110 acres and includes sixteen ASTs. The chosen alternative in the OU5 ROD, signed in April 1999, is land use controls. The entire area is fenced; an annual fence inspection takes place to ensure integrity of this control.

## STATUS

**RRSE RATING:** Medium

**CONTAMINANTS OF CONCERN:**

Lead, POL

**MEDIA OF CONCERN:**

Soil

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, RA, RA(O)

**CURRENT IRP PHASE:**

LTM

**FUTURE IRP PHASE:**

LTM

## PROPOSED PLAN

Land use controls will remain in place. Treatability studies will be completed to evaluate the lead removal options.

## SITE DESCRIPTION

Building 1168 has two areas:

- a dry well (oil/water separator), which is being addressed under the Three Party Federal Facilities Agreement, OU2 for soil and groundwater contamination (FTWW-072) and
- UST 213 (FTWW-097).

One underground storage tank (UST #213) was located near former Building 1168, a vehicle storage facility/motor pool. UST 213 along with the associated piping was removed in 1994. DRO were detected in the groundwater. A soil vapor extraction/air sparging system was installed (1995) as a treatability study to address groundwater contamination at this source area. Contamination levels decreased to levels where the system could be turned off in 2001 and decommissioned in 2003.

It has been agreed that monitoring will occur every other year.

## PROPOSED PLAN

The Army will negotiate for site closure no later than FY06.

This area is being considered for family housing.

## STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, IRA, RD, RA, RA(O)

**CURRENT IRP PHASE:**

LTM

**FUTURE IRP PHASE:**

LTM

# FTWW-099 UST, BLDG 3564 (UST 283, 284)

## SITE DESCRIPTION

Two 25,000 gallon underground storage tanks were removed (1994) and replaced with one 10,000 gallon UST at former Building 3564. This former building (demolished in 1999) was a stand-by generator plant, and is located up gradient of the post's drinking water supply wells. The extent of petroleum contamination in the soil and ground-water was defined in the Site Assessment report.

An air sparging/soil vapor extraction treatment system was installed in 1996, and attenuation measured. In 2000, it was determined levels had reached the point where system operation was no longer required. The system was shut off permanently, and decommissioned and moved in 2001.

Monitoring results post-system decommissioning have shown some rebound, but not in the areas of former active treatment.

## STATUS

**RRSE RATING:** Medium

**CONTAMINANTS OF CONCERN:**

Benzene, GRO, DRO, BTEX

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, IRA, RA, RA(O)

**CURRENT IRP PHASE:**

LTM

**FUTURE IRP PHASE:**

LTM

## PROPOSED PLAN

Annual monitoring will continue until a downward trend has occurred and clean-up levels have been met for two consecutive events. Continue negotiating frequency and parameters of monitoring as results warrant.



### **SITE DESCRIPTION**

FTWW-100 is the former pesticide shed at the golf course on Fort Wainwright. An UST associated with Building 2250 was removed in the summer 1994. The only contamination identified was DRO in soil and groundwater.

A soil vapor extraction (SVE) system was installed in September 1995. Recent data, however, showed a clear increase in the contaminant levels. The SVE system was turned off in May 2004 because it was ineffective.

Additional samples were taken in summer 2004; the results are pending.

### **STATUS**

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

DRO

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 2 IRAs, RA, RA(O)

**CURRENT IRP PHASE:**

LTM

**FUTURE IRP PHASE:**

LTM

### **PROPOSED PLAN**

When the sampling report is finalized the monitoring frequency will be negotiated. Long-term monitoring will continue.

# FTWW-101 NEELY ROAD POL POINT

## SITE DESCRIPTION

Building 3570 is the former Post Exchange Gas Station at the corner of Neely Road and 11th Street. The station operated between 1955 and 1981, dispensing fuel and servicing vehicles. The station utilized two 10,000 and one 550 gallon underground storage tanks (USTs), which were removed in 1987. The station was then used as an Auto Skill Center before being vacated in the late 1990s.

In May 2001, during foundation excavation for a veterinary clinic at this site, approximately 15 cubic yards of contaminated soil was removed and stockpiled on site, and later removed for off-site thermal treatment.

In 2002, a limited RI was conducted. Laboratory analysis confirmed the contamination as primarily benzene (2.2ppm in groundwater) and GRO above ADEC levels in soil and groundwater.

In the fall 2003, additional contamination delineation, using Rapid Optical Screening Tool (ROST) technology, was completed and the report is being reviewed.

## STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

Benzene, DRO, GRO, BTEX

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA

**CURRENT IRP PHASE:**

RI/FS (funded), RA

**FUTURE IRP PHASE:**

RA(O), LTM

## PROPOSED PLAN

Installation of enhanced AS/SVE system with enhanced biodegradation (addition of surfactant) is being evaluated. Long-term operation for five years then annual monitoring of 10 wells for seven years starting in 2011 is planned.

# **Fort Wainwright**

## **MMRP SITES**

## **FTWW-001-R-01 TA-105**

This is a closed range, still owned by the U.S. Army, comprising 364 acres in the southeastern part of the cantonment area where the golf course now exists. Small arms and pyrotechnics were expended at this training range, which was used from approximately 1941 to 1971. No remediation of this range has been conducted.

This site was cleared and no UXO was found. There is a golf course and buildings on this land.

## **FTWW-002-R-01 TA-101**

This is a closed range, still owned by the U.S. Army, comprising 157 acres in the southwestern part of the cantonment area where residential development now exists. Small arms and pyrotechnics were expended at this training range, which was used from approximately 1942 to 1972. No remediation of this range has been conducted.

This is an active (non-range) training area in a wetlands.

## **FTWW-003-R-01 TA-107**

This is a closed range, still owned by the U.S. Army, comprising 82 acres on the western edge of the cantonment area where residential development now exists. Small arms and pyrotechnics were expended at this training range, which was used from approximately 1942 to 1983. A small portion of the former TA-107 extended to the north of the A/I area that separates it from the southern portion of the TA-107 range. For purposes of this report, it was included as one closed range because it was historically used as one training area. No remediation of this range has been conducted.

This is an active training area that will soon be a residential area.

## **FTWW-004-R-01 ARCTIC SURVIVAL AREA-SKI SLOPE**

This is a closed range, still owned by the U.S. Army, comprising 126 acres in the northern portion of the cantonment area where a recreational ski slope now exists. Small arms and pyrotechnics were expended at this training range, which was used as a range from approximately 1942 to 1958. No remediation of this range has been conducted.

This area was cleared and is used as a ski training area.

## **FTWW-005-R-01 MACHINE GUN SQUARE**

This is a closed range, still owned by the U.S. Army, comprising 0.78 acres in the south-central portion of the cantonment area where office development now exists. Small arms were expended at this training range, which was used from approximately 1948 until 1962. No remediation of this range has been conducted.

This site was cleared and no UXO was found.

## **FTWW-006-R-01 NW ARCTIC INDOCTRINATION AREA**

This is a transferred range, now owned by various private parties, comprising 792 acres to the northeast of the installation cantonment area. Pyrotechnics were expended at this training range, which was used from approximately 1955 until 1961. No remediation of this range has been conducted.

Although this range may qualify as FUDS property, it is not currently on the FUDS list, so it is inventoried in this report.

## **FTWW-007-R-01 YUKON RIVER**

This segment of the Yukon River is a transferred range, owned by the United States Department of the Interior, comprising 109,441 acres in the western half of Alaska, to the west of Fort Wainwright. Bombs were dropped into the river between Ruby and 100 miles downstream of Galena by Fort Wainwright personnel as part of an effort to break up springtime ice jams between 1942 and 1945. No remediation of this range has been conducted.

Although this range may qualify as FUDS property, it is not currently on the FUDS list, so it is inventoried in this report.

## **FTWW-008-R-01 BOMBING AREA BETWEEN FT WAINWRIGHT AND FT GREELY**

This is a transferred range, owned primarily by the state of Alaska, comprising 477,369 acres between Fort Wainwright and Fort Greely, and to the east of Fort Greely. Bombs and rockets were dropped either as part of training runs, or by Lend-Lease pilots trying to lighten their cargo loads. In addition, other training exercises in these areas resulted in the expending of rockets, small arms, and pyrotechnics. This range was used for various purposes between 1942 and 1973.

It should be noted that in early 1941 Congress approved the Lend-Lease Program, which enabled the U.S. to transfer arms and equipment to any nation (notably Great Britain, the Soviet Union and China) deemed vital to the defense of the United States. One of the equipment transfer routes was from Alaska to Siberia, and Fort Wainwright (then Fort Ladd) was a critical link in that route. The dates that this area was used for bombing predated the independent U.S. Air Force. At that time, the U.S. Army Air Force handled such flights. No remediation of this range has been conducted.

Although this range may qualify as FUDS property, it is not currently on the FUDS list, so it is inventoried in this report.

This area is currently undeveloped, except for a few cabins used for recreation.

## **FTWW-009-R-01 SOLID WASTE LANDFILL**

This is a closed munitions site, still owned by the U.S. Army, comprising 3 acres in the northern portion of the installation cantonment area and is part of an active landfill. Inert practice bombs, many with spotting charges, were buried here between approximately 1970 and 1995. No remediation has been conducted at this range.

This site was investigated as part of the OU4 (FTWW-038), no UXO was found.



# **Fort Wainwright**

## **COMPLIANCE CLEAN-UP SITES**

### **SITE DESCRIPTION**

Alias: FWA9100026

This site is the location of Cat Shed (heavy equipment storage) at the Fort Wainwright Power Plant. Two bulk oil USTs and 1 diesel fuel UST were located at the site. The diesel tank was replaced in 1998.

A site assessment indicated that the old diesel fuel UST leaked.

Institutional controls to limit access are in place.

### **STATUS**

RCRAI

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Soil, Groundwater

**SITE TYPE:**

UST

**LAND USE:**

Industrial

**COMPLETED PHASE:**

PA/SI

**CURRENT PHASE:**

RI/FS

**FUTURE PHASE:**

RA, RA(O)

### **PROPOSED PLAN**

Additional samples are needed to delineate the contamination. In situ treatment may be needed. Continue use of the institutional controls.

# FTWWCC-02 FORWARD AIR REFUELING POINT (FARP)

## SITE DESCRIPTION

Alias: FWA9100026

In 1996, the refueling point (Bldg 2111, FTWW-087) was found to be leaking. The refueling point was taken off line so that the leaks could be fixed.

The Forward Air Refueling Point (FARP) at Fort Wainwright was built as a temporary answer for refueling point. The FARP is expected to be in use until 2005. At that time, an investigation will be conducted to determine if any contamination is present.

## STATUS

RCRAI

**CONTAMINANTS OF CONCERN:**

Unknown

**MEDIA OF CONCERN:**

Unknown

**SITE TYPE:**

AST

**LAND USE:**

Industrial

**COMPLETED PHASE:**

N/A

**CURRENT PHASE:**

N/A

**FUTURE PHASE:**

N/A

## PROPOSED PLAN

If the site is determined to be eligible, funding requirements will be determined in the future.

# FTWWCC-03 VET CLINIC/BOAT SHOP (BLDGS 2062/2063)

## SITE DESCRIPTION

Alias: FWA9100026

This site is located between former Bldg 2062 and 2063. The former UST (No. 242) was removed in 1995. A SI was conducted during tank removal indicated extensive soil and groundwater contamination at the site. A limited soil removal (350 cy) was conducted during SI.

Additional RI conducted in 1996 showed petroleum contamination in soil and groundwater at the site. No active treatment has taken place at this site.

## STATUS

RCRAI

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Soil, Groundwater

**SITE TYPE:**

UST

**LAND USE:**

Industrial

**COMPLETED PHASE:**

PA/SI, RI

**CURRENT PHASE:**

LTM

**FUTURE PHASE:**

LTM

## PROPOSED PLAN

Continue groundwater monitoring and negotiate a no further action determination with the state of Alaska.

# FTWWCC-04 PIPELINE REMEDIATION

## SITE DESCRIPTION

Alias: FWA9900001

This is a pipeline system connecting the fuel storage tanks on Fort Wainwright with USTs at the Army Airfield for distribution to aircraft. The fuel distribution system was taken out of operation in 1995 but never purged or cleaned. Precise information regarding the number and location of individual pipelines is not available.

The unpurged lines were found to be leaking fuel during investigations conducted in 2000. Additional fuel lines were located during cleanup operations that have been conducted since evaluation in 2000. The original compliance date (6 April 1992) stipulated in 2-Party Agreement was missed as proper decommissioning was not conducted. Cleanup of contaminated soil associated with leaking pipelines is ongoing.

Starting in 2000, pipelines were purged and/or removed. During each of these actions, additional piping has been located, resulting in requirements for additional removal actions. So far ~\$3 million has been spent on these removals.

## PROPOSED PLAN

Continue to purge and/or remove piping as discovered.

## STATUS

RCRAI

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Soil

**SITE TYPE:**

POL Lines

**LAND USE:**

Industrial

**COMPLETED PHASE:**

PA/SI

**CURRENT PHASE:**

RA

**FUTURE PHASE:**

RC

# **Fort Wainwright**

**ER,A RESPONSE COMPLETE SITES**



# POWER PLANT COAL STORAGE YARD (BLDG 3595)

## FTWW-011

### SITE DESCRIPTION

FTWW-011 is part of OU4. It is located south of the Fort Wainwright power plant and east of the power plant cooling pond. Coal was stored directly on the ground without a liner. Waste petroleum products and solvents were sprayed over the coal pile to increase the British Thermal Unit content and energy output of the plant. This practice has been discontinued. Two 10,000 gallon USTs were installed in the 1980s to contain waste oil for the practice of spraying to increase BTUs. Before this time, waste oil and solvents were placed in drums and stored adjacent to the coal pile. The USTs were removed in July 1995. Solvent contamination resulted from the spraying of products on the coal, the leaking USTs and leaking drums.

A RI was conducted in 1993-4, which showed unacceptable levels of contamination in groundwater. There is a production well ~900 ft downgradient from the site.

The chosen alternative in the ROD, signed September 1996, was in situ treatment of soils and groundwater via enhanced soil vapor extraction/air sparging. The treatment system was operated summer 1997 to 2000. Cleanup goals were achieved. The site-specific exit strategy (CLOSES) was developed in 2003 that reduced the monitoring requirements from 16 wells to 5.

In FY04, ADEC & EPA agreed that this site will no longer need monitoring. Monitoring for potential migration will be addressed under FTWW-099.

### STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

Solvents

**MEDIA OF CONCERN:**

Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, IRA, RD, RA, RA(O), LTM

**CURRENT IRP PHASE:**

RC - 2004

# UST, BLDG 3481 (275,276)

## FTWW-056

### SITE DESCRIPTION

Two underground storage tanks were located near Building 3481 near the southern boundary of Fort Wainwright and North of Chippewa Avenue. USTs 275 and 276 were removed in 1990. Contamination was detected during the excavation of the tanks, and soil excavation was performed, then thermally remediated.

The site next to it, FTWW-057, was actively remediated using a bioventing and air-sparging system. From this remediation process, it was concluded that monitored natural attenuation/long-term monitoring at this site has ensured that contamination has not migrated.

Contamination levels have decreased to the point where no further monitoring will be required. The Army has negotiated with ADEC for requirements to achieve site closure.

### STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

Benzene, POL

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 2 IRAs, RA, LTM

**CURRENT IRP PHASE:**

RC - 1996

## FTWW-057 UST, BLDG 3483 (277, 278)

### SITE DESCRIPTION

Two 10,000 gallon underground storage tanks were located near Building 3483, which is located North of Chippewa Avenue. Both USTs were removed in 1990. High levels of fuel contamination were reported for two of the soil samples collected from the bottom and side walls of the excavation at the time of the removal. The corrective action plan (CAP), consisting of a bioventing/air sparging treatment system to remediate the soil contamination was installed.

Contaminants were reduced below action levels, and the system was turned off (1998) and monitored for rebound. Although sampling results from 1999 showed a small rebound, it was decided the system could be decommissioned. It was removed in 2003.

The Army negotiated with ADEC for requirements to achieve site closure in 2002.

### STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 2 IRAs, RD, RA, RA(O), LTM

**CURRENT IRP PHASE:**

RC - 2001

### SITE DESCRIPTION

The DRMO Salvage Yard POL sites were made up of two areas, DRMO1 and DRMO5. The site is located along Badger Road, northwest of the intersection of Badger Road and the Old Richardson Highway on the eastern boundary of Fort Wainwright. A flood control "V" channel that connects the Chena and Tanana Rivers is located approximately 50 feet west of one of the systems. The salvage yard is a fenced compound covering about 25 acres.

Soil/groundwater contamination was being addressed at DRMO1 and DRMO5 using soil vapor extraction and air sparging, in conjunction with long-term monitoring.

Recent sampling results indicate treatment has not decreased contaminate levels significantly for some time. The systems have both been shut off and are undergoing rebound evaluations. Sampling has also indicated that the plume from DRMO1 has commingled with the OU2 DRMO Site (FTWW-047), and treatment and monitoring will be easier to address under one site.

Therefore, this site will be closed, and all further remedial action will take place under FTWW-047.

### STATUS

**RRSE RATING:** High

**CONTAMINANTS OF CONCERN:**

POL

**MEDIA OF CONCERN:**

Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI/FS, 3 IRAs, RA, RA(O), LTM

**CURRENT IRP PHASE:**

RC - 2003

## FTWW-091 DRMO POL SITES

# OTHER RESPONSE COMPLETE IRP SITES

<b><u>Number</u></b>	<b><u>Title</u></b>
FTWW-001	MOTOR POOL (BLDG 3421,3725,5195,3425)
FTWW-002	MOTOR POOL (BLDG 3485,3487)
FTWW-004	DEH MAIN SHOP (BLDG 3015)
FTWW-005	AUTO HOBBY SHOP (BLDG 1053)
FTWW-007	EQUIP MAIN FACILITY (BLDG 3489)
FTWW-008	PAINT SHOP (BLDG 3022)
FTWW-010	LAUNDRY (BLDG 3025)
FTWW-016	SHOPS (BLDG 1595)
FTWW-017	SHOP (BLDG 1553)
FTWW-018	PHOTO SHOP (BLDG 3009)
FTWW-019	NORTH POINT POL (BLDG 1565)
FTWW-020	POWER PLANT 2 (BLDG 1561)
FTWW-021	DARK ROOM (BLDG 1045)
FTWW-023	DYKE RANGE
FTWW-024	BLAIR LAKES DISPOSAL SITE
FTWW-025	FORT WAINWRIGHT MANEUVER AREA W/RANGES
FTWW-026	PESTICIDE STG (BLDG 1599)
FTWW-027	PESTICIDE STGE (BLDG 4072)
FTWW-028	PCB SPILL IN BUILDING 3568
FTWW-037	FIRE FIGHTING TRAINING AREA
FTWW-048	RAILROAD STORAGE YARD
FTWW-049	CONTAMINATED SOIL PILE (POWER PLANT)
FTWW-051	SITE UST, BLD 3423 (269,#270)
FTWW-052	UST, BLG 3015 (264, #265)
FTWW-053	UST, BLG 1956 (#325)
FTWW-054	UST, BLDG 4109 (#299)
FTWW-056	UST, BLDG 3481(#275,#276)
FTWW-057	UST, BLDG 3483 (#277,#278)
FTWW-058	UST, BLDG 4057 (#303)
FTWW-059	UST, BLDG 4065 (#305,#304)
FTWW-060	UST, BLDG 4247 (#309)
FTWW-061	UST, BLDG 5004 (UST 310)
FTWW-062	UST, BLDG 1546 (227,228,229,230, 231,232,23
FTWW-063	UST, BLDG 1514 (#221,222,223,224)
FTWW-064	BIRCH HILL TANK FARM UST#345-350
FTWW-065	FLY ASH POND
FTWW-066	BEACON TOWER LANDFILL
FTWW-068	OPEN BURNING/OPEN RETONATION
FTWW-069	WATER TREATMENT PLANT SETTLING POND
FTWW-070	FORMER EOD RANGE, ALPHA IMPACT AREA
FTWW-071	TRAINOR GATE RAILROAD SPUR
FTWW-073	NIKE SITES B & C CLEANUP
FTWW-074	DRUMS SITE WEST OF DRMO - SITE N-4
FTWW-075	BIRCH HILL RADIOACTIVE SITE
FTWW-076	GOLF COURSE PESTICIDE SHED - 2250
FTWW-077	BLDG 1567
FTWW-078	TAR SITES
FTWW-079	ENGINEER PARK DRUM SITE
FTWW-080	DRUMS SOUTH OF LANDFILL
FTWW-081	NORTH POST PIPELINE BREAK

## OTHER RESPONSE COMPLETE IRP SITES

FTWW-082	CHEMICAL AGENT DUMP SITE
FTWW-086	UST, BLDG 3562
FTWW-088	UST, BLDG 1060
FTWW-089	UST, BLDG 3425
FTWW-090	UST, BLDG 3479
FTWW-091	DRMO POL SITES
FTWW-092	TRANSFORMER EAST OF BLDG 3019
FTWW-093	FARMER'S LOOP PERMAFROST STATION
FTWW-098	UST, BLD 1172

## PAST MILESTONES

Year of IRP Inception: 1988

## FUTURE MILESTONES

Projected completion date of all RA: 2005

Projected completion date of all IRP: 2034+

## NO FURTHER ACTION

FTWW-001, 002, 004, 005, 007, 008, 010, 016, 017, 018, 019, 020, 021, 023, 024, 025, 026, 027, 028, 037, 048, 049, 051, 052, 053, 054, 056, 057, 058, 059, 060, 061, 062, 063, 064, 065, 066, 068, 069, 070, 071, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 086, 088, 089, 090, 091, 092, 093, 098

# Fort Wainwright IRP Schedule

(Based on current funding constraints)

AEDB-R #	TITLE	PHASE	FY04	FY05	FY06	FY07	FY08	FY09
FTWW-003	Aircraft Main (Bldg 2077)	LTM						
FTWW-038	Ft. Wainwright Landfill Plume	RA(O)						
FTWW-047	DRMO Salvage Yard	RA(O)						
		LTM						
FTWW-050	North Post Site	LTM						
FTWW-055	Fairbanks Fuel Term	RA(O)						
		LTM						
FTWW-067	801 Drum Burial Site	RA(O)						
FTWW-072	Oil Water Separator at Bldg 1168	LTM						
FTWW-083	Railroad Loading Facility	RA(O)						
		LTM						
FTWW-084	Fairbank-Eielson Pipeline Spills	RA(O)						
FTWW-085	UST, Bldg 5110	LTM						
FTWW-087	UST, Bldg 2111 & 2112	RA(O)						
		LTM						
FTWW-094	Former QuarterMaster's Fueling System- East/West	RA(O)						
		LTM						
FTWW-095	UST, Bldg 1002	LTM						
FTWW-096	Birch Hill AST	LTM						
FTWW-097	UST, Bldg 1168	LTM						
FTWW-099	UST, Bldg 3564	LTM						
FTWW-100	UST, Bldg 2250	LTM						
FTWW-101	Neely Road POL Point	RA						
		RA(O)						
		LTM						

# Remediation Activities

Past remedial actions on Fort Wainwright include removal of various leaking and abandoned tanks, drum removal, POL contaminated soil treatment, and land farming. All sites listed are screened for potential removal, accelerated action, and IRA at each phase of the process.

## **Past REM / IRA / RA / LTM:**

- FTWW-020, Power Plant 2 - Removal of old power plant to include removal of debris and hazardous waste drums, underground storage tanks, Aug 1988 (FY88)
- FTWW-024, Blair Lakes Disposal Site - Removal of over 1,700 drums, fuel tanks and 15 yards of miscellaneous debris. Drums contained an assortment of waste with many drums leaking, Aug 1988 (FY88)
- FTWW-037, Fire Fighting Training Area - Removal and disposal of POL-contaminated soil, completed Aug 1996, (FY95)
- FTWW-038, Ft. Wainwright Landfill Plume - Capping of older inactive portion of landfill (completed in 1997).
- FTWW-049, Contaminated Soil Pile - Thermal treatment of POL-contaminated soil from various USTs, Jul 1992 (FY92), Aug 1993 (FY93), Jul 1994 (FY94), Jul 1995 (FY94)
- FTWW-050, North Post Site - Removal and disposal of POL-contaminated soil from an abandoned UST, Jul 1993 (FY91)
- FTWW-050, North Post Site - Removal of PAH contaminated soil, Sept 1996
- FTWW-050, North Post Site - Soil vapor extraction system and air sparging system installed in May 1996, turned off November 2000, decommissioned and moved in FY01
- FTWW-051, UST BLDG 3423 - Removal of leaking UST and contaminated soil, July 1989 (FY89)
- FTWW-052, UST BLDG 3015 - Removal of leaking UST and contaminated soil, July 1989 (FY89)
- FTWW-053, UST BLDG 1956 - Removal of leaking UST and contaminated soil, June 1989 (FY89)
- FTWW-054, UST BLDG 4109 - Removal of leaking UST and contaminated soil, June 1988 (FY88)
- FTWW-055, Fairbanks Fuel Terminal - Evaluation of treatment alternatives for product containment (FY00)
- FTWW-055, Fairbanks Fuel Terminal - Installation of air sparging vapor extraction system. System enhancements and recovery systems installation (FY01-02)
- FTWW-056, UST BLDG 3481 - Removal of leaking UST and contaminated soil, June 1990 (FY90)
- FTWW-057, UST BLDG 3483 - Removal of leaking UST and contaminated soil, June 1990 (FY90)
- FTWW-057, UST BLDG 3483 - Soil vapor extraction system and air sparging system installed, Aug 1994; system operation completed FY2001.
- FTWW-058, UST BLDG 4057 - Removal of leaking UST and contaminated soil, May 1990 (FY89)
- FTWW-059, UST BLDG 4065 - Removal of leaking UST and contaminated soil, June 1990 (FY90)
- FTWW-060, UST BLDG 4247 - Removal of leaking UST and contaminated soil, May 1990 (FY89)
- FTWW-061, UST BLDG 5004 - Removal of leaking UST and contaminated soil, June 1990 (FY89)
- FTWW-062, UST BLDG 1546 - Removal of leaking UST and contaminated soil, June 1990 (FY90)
- FTWW-062, UST BLDG 1546 - Bioventing and air sparging system installed, Aug 1994, (FY94); shut off FY00, LTM requirements met, and closure letter obtained from state
- FTWW-063, UST BLDG 1514 - Removal of leaking UST and associated contaminated soil, May 1990, (FY90)
- FTWW-063, UST BLDG 1514 - Natural attenuation with LTM until 1998. Awaiting closure letter from state, (FY95)



# Remediation Activities

- FTWW-064, Birch Hill Tank Farm UST #345-350 - Removal of abandoned USTs and associated contaminated soil, Aug 1991 (FY91) and June 1994 (FY94)
- FTWW-067, 801 Drum Burial Site - Removal of 850 drums and contaminated soils that contained high levels of pesticides and POL products, Aug 1992 (FY92)
- FTWW-067, 801 Drum Burial Site. Removal of additional drums and treatment of solvent/pesticide-contaminated soil 1997
- FTWW-072, Oil Water Separator at Bldg 1168 - Removal of leaking UST associated with oil water separator, June 1994, (FY94)
- FTWW-072, Oil Water Separator at Bldg 1168 - Soil Vapor Extraction System and Air Sparging system installed, Nov 1994 (FY94); system shut off and to be moved FY00
- FTWW-073, Nike Sites B & C Clean-up - Removal of POL-contaminated soil, Nov 1993 (FY93)
- FTWW-077, BLDG 1567 - Removal and disposal of pesticide-contaminated building and foundation, July 1992 (FY92)
- FTWW-079, Engineer Park Drum Site - Removal of 680 leaking drums that were buried in the 1950s and 1960s, July 1992 (FY92)
- FTWW-080, Drums South of Landfill - Removal of 573 leaking drums that were buried in the 1950s and 1960s, July 1992 (FY92)
- FTWW-081, North Post Pipeline Break - Removal of abandoned pipeline and associated POL-contaminated soil, June 1992 (FY92)
- FTWW-082, Chemical Agent Dump Site - Installation of fence to control site access, June 1993, (FY93) and Interim Remedial Action with signed ROD for removal and confirmation of the chemical agent dump site, June 1995 (FY95)
- FTWW-083, Railroad Off Loading Facility - System enhancements and recovery systems installation (FY01-02)
- FTWW-084, Fairbanks-Eielson Pipeline Spills - System enhancements and recovery systems installation (FY01-02)
- FTWW-084, Fairbanks-Eielson Pipeline Spills – In situ treatability study, installation of air sparging vapor extraction system, summer 1996. ROD signed April 1996. Fieldwork began September 1996. System found to be inefficient. Ex situ treatment recommended
- FTWW-085, UST BLDG 5110 - Removal of leaking UST and contaminated POL soil, June 1990 (FY90)
- FTWW-086, UST BLDG 3562 - Removal of leaking UST and contaminated POL soil, June 1990 (FY90) and removal of leaking tank, June 1995 (FY95)
- FTWW-086, UST BLDG 3562 - Soil Vapor Extraction and Air Sparging system installed in Nov 1995, (FY95) System off in FY99, will be moved FY00
- FTWW-086, UST BLDG 3562 - LTM (2001)
- FTWW-087, UST BLDG. 2111 and 2112 - Removal of two leaking 50,000 gallon USTs and associated POL contamination, 2112 removed June 1994 (FY94) and 2111 removed June 1995 (FY95)
- FTWW-088, UST BLDG 1060 - Removal of leaking UST and contaminated POL soil, June 1990, (FY90)
- FTWW-089 UST BLDG 3425 - Removal of leaking UST and contaminated POL soil, June 1990, (FY90)
- FTWW-089, UST BLDG 3425 - Additional soil excavation conducted summer 1996. Awaiting closure letter from state

# Remediation Activities

- FTWW-090, UST BLDG 3479 - Removal of leaking UST and contaminated POL soil, June 1993, (FY93)
- FTWW-091, DRMO POL Sites - Removal of leaking USTs and contaminated POL soil, June 1993, (FY93)
- FTWW-093, Farmers Loop Permafrost Station - Removal of POL-contaminated soil, June 1993, (FY93)
- FTWW-094, Former Quartermasters Fueling System East/West (WQFS3, WQFS2), Designing of systems to address contaminated, untreated areas.
- FTWW-094, Former Quartermasters Fueling System East/West (Sub-area WQFS2), Treatability study, removal of former retaining structure. May 1998
- FTWW-094, Former Quartermasters Fueling System East/West (Sub-Area WQFS2), Treatability study, installation of Oxygen Releasing Compounds, installed December 1996; completed 1998
- FTWW-094, Former Quartermasters Fueling System East/West (EQFS); Air sparging/soil vapor extraction system installed East Building 1060, EWFS. System turned off Dec 99; will move system FY00
- FTWW-094, Former Quartermasters Fueling System East/West (WQFS-Sub-area A), Six Phase Heating, and Radio Frequency Heating treatability study; Source Area treatability study. summer 1998. Study completed FY00
- FTWW-094, Former Quartermasters Fueling System East/West (EQFS); Air sparging/soil vapor extraction system installed East Building 1060, EWFS, shut off and moved FY00
- FTWW-095, UST BLDG 1002 - Removal of leaking UST, May 1994, (FY94)
- FTWW-097, UST BLDG 1168 - Removal of leaking UST, Sept 1994, (FY94)
- FTWW-097, UST BLDG 1168 - SVE and air sparging system installed in Sept 1995, deactivated 01
- FTWW-098, UST BLDG 1172 - Removal of leaking UST, Jul 1991, (FY91)
- FTWW-098, UST BLDG 1172 - Natural attenuation with LTM until 2000. Closure letter to be obtained from State (FY95)
- FTWW-099, UST BLDG 3564 - Removal of leaking UST, Aug 1994 (FY94)
- FTWW-099, UST BLDG 3564 - Soil vapor extraction/air sparging system installed summer 1996. Active system shut off FY00
- FTWW-100, UST BLDG 2250 - Removal of leaking UST, Aug 1994 (FY94)
- FTWW-011, Coal Storage Yard: Soil vapor extraction/air injection system installed summer 1997. Active system (2001)
- FTWW-056, UST BLDG 3481 - Natural attenuation with LTM until 2003
- FTWW-057, UST BLDG 3483 - LTM (2002)
- FTWW-067, 801 Drum Burial Site - RA(O), phytoremediation study of IDW soils; removal of soils to landfill being requested FY01, which would preclude 2003 action if approved (2003)
- FTWW-084, Fairbanks-Eielson Pipeline Spills - Installation ex situ of air sparging vapor extraction system treatability study, summer 1998. In progress for full-scale remediation for both mileposts. Active system (2005)
- FTWW-091, DRMO POL Sites - Soil vapor extraction and air sparging system installed June 1996, (FY95). Active system (2003)

# Remediation Activities

## **Current REM / IRA / LTM:**

- FTWW-003, Aircraft Main (Bldg 2077) - Installation of soil vapor extraction/air sparging system. Active system (2003). LTM (2008)
- FTWW-038, Ft. Wainwright Landfill Plume. LTM for natural attenuation, cap inspections and maintenance, and institutional controls maintenance (2023)
- FTWW-047, DRMO Salvage Yard - Installation of soil vapor extraction/air sparging system for PCE and TCE plume. Active system (2006). LTM (2013)
- FTWW-050, North Post Site. LTM (2011)
- FTWW-055, Fairbanks Fuel Terminal - Installation of air sparging vapor extraction system. ROD signed April 1996. Fieldwork began September 1996. Active system; system expansion and product recovery enhancements included (2009). LTM (2020)
- FTWW-067, 801 Drum Burial Site - LTM for 20 years (2018). ROD signed 1997
- FTWW-072, Oil Water Separator at BLDG 1168 - LTM (2005)
- FTWW-083, Railroad Off Loading Facility - Installation of air sparging vapor extraction system summer 1996. ROD signed April 1996. Fieldwork began September 1996, includes system expansions modifications. Active system (2008). LTM (2018)
- FTWW-084, Fairbanks-Eielson Pipeline Spills - LTM at milepost sites (2018)
- FTWW-085, UST BLDG 5110 - Natural attenuation with LTM until 2013. (FY95)
- FTWW-087, UST BLDG 2111 and 2112 - Soil vapor extraction and air sparging installed May 1996, (FY95). Active system (2005). LTM (2015)
- FTWW-094, Former Quartermasters Fueling System East/West (Sub-Area WQFS2), installation of Horizontal well for SVE/AS 1997 and augmentation (2009). Chena River Aquatic Assessment Program. (2018)
- FTWW-094, Former Quartermasters Fueling System East/West (EQFS); Air sparging/soil vapor extraction system installed West Building 1060, EQFS, FY01 (2009). LTM (2018)
- FTWW-094, Former Quartermasters Fueling System East/West (WQFS-Sub-area A), Source Area SVE/AS system. Installed summer 1998. (2009) LTM (2018)
- FTWW-094, Former Quartermasters Fueling System East/West (WQFS-Sub-area A), Air sparging/SVE sparge curtain system for Chena River protection. summer 1998 (2009). LTM (2018)
- FTWW-094, Former Quartermasters Fueling System East/West (WQFS sub-area 3), Air sparging/SVE system for additional Chena River protection. (2009). LTM (2018)
- FTWW-095, UST Bldg 1002. Soil vapor extraction/air sparging installed 1995. Active system (2002). LTM (2004)
- FTWW-096, Birch Hill Above Ground Storage Tanks - Institutional Controls (1998) (2018)
- FTWW-097, UST BLDG 1168 LTM (2008)
- FTWW-099, UST BLDG 3564 - LTM (2005)
- FTWW-100, UST BLDG 2250 - Soil vapor extraction and air sparging system installed in Sept 1995, (FY95). Active system (2004). LTM (2004-2015)
- FTWW-101 Neely Road POL Point - RI in progress (2001)
- FTWW-003, Bldg 2077 – Hot spot removal fall FY03.

# Remediation Activities

- FTWW-094, Former Quartermasters Fueling System East/West (WQFS), potential air sparging trench, augmentation for better hot spot treatment (WQFS3, WQFS2,) - Sept 2003

## **Future REM / IRA / LTM:**

- FTWW-101, Neely Road POL Point

# Community Involvement

## RESTORATION ADVISORY BOARD (RAB) STATUS

The surrounding community for Fort Wainwright is the town of Fairbanks, Alaska, and the North Star Borough (approximate population 75,000). A Restoration Advisory Board was established in 1997, and the first meeting held in September. The RAB includes members from the business community, installation residents, local environmental groups, and local residents. The RAB also includes a member of the Tanana Chiefs, a local Native American organization. Government members include individuals from the Environmental Protection Agency, Region X and Alaska Department of Environmental Conservation.

RAB meetings were historically held quarterly. Interest in the RAB has decreased substantially. Beginning in summer 2002, RAB meetings were held semi-annually.

RAB members have provided advice on cleanup studies and presented their areas of concern. RAB members have been provided technical presentations to better understand the cleanup processes and technologies in place on Fort Wainwright. We continue to research ways to involve the community in the clean-up process.

The RAB was adjourned in July 2003 due to decreased attendance and upon the Community Co-Chair's recommendation.

**Fort Wainwright Installation Action Plan FY05**

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